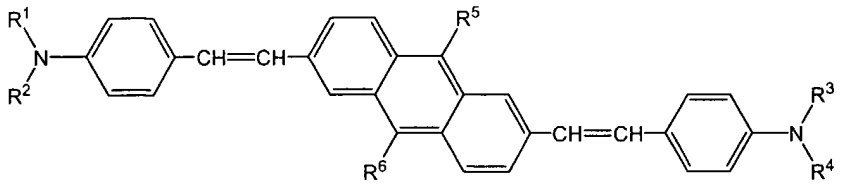
IN THE CLAIMS

Please amend the claims as follows:

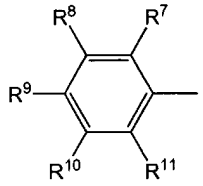
1. (Currently amended) A bis(aminostyryl)anthracene compound represented by ~~the general~~ formula [I], [II], [III], or [IV] ~~below.~~

~~General~~ formula [I]:



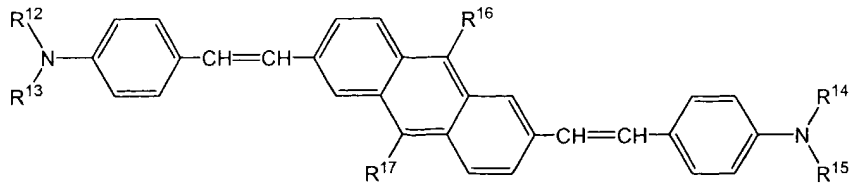
~~(~~where R^2 and R^3 each denotes an unsubstituted aryl group, and R^1 and R^4 each denotes an aryl group represented by ~~the general~~ formula (1) ~~below.)~~

~~General~~ formula (1)



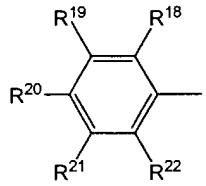
~~(~~where R^7, R^8, R^9, R^{10}, and R^{11} are identical or different groups, at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group having at least one carbon; and R^5 and R^6 are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, ~~trifluoromethyl group~~, or halogen atom.~~)~~

~~General~~ formula [II]



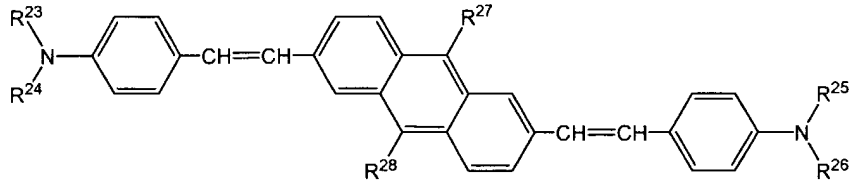
(where R^{12}, R^{13}, R^{14}, and R^{15} are identical or different groups, each denoting an aryl group represented by ~~the general~~ formula (2) ~~below.~~)

~~General~~ formula (2)



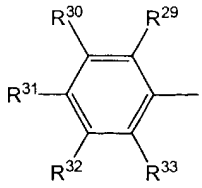
(where R^{18}, R^{19}, R^{20}, R^{21}, and R^{22} are identical or different groups, at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group having at least one carbon; and R^{16} and R^{17} are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, ~~trifluoromethyl group~~, or halogen atom.~~)~~

~~General~~ formula [III]



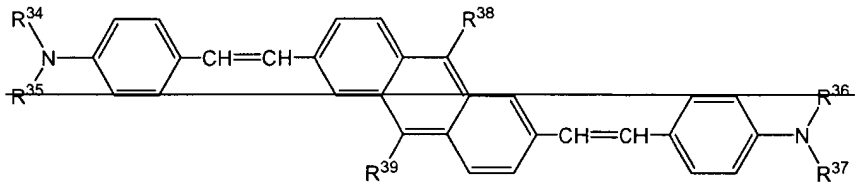
(where at least one of R^{23}, R^{24}, R^{25}, and R^{26} denotes an aryl group represented by ~~the general~~ formula (3) ~~below~~, with the remainder being an unsubstituted aryl group.~~)~~

~~General~~ formula (3)



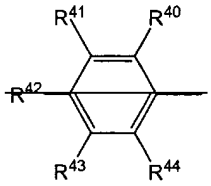
(where R^{29}, R^{30}, R^{31}, R^{32}, and R^{33} are identical or different groups, at least one of them being a saturated or unsaturated hydrocarbon amino group; and R^{27} and R^{28} are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, ~~trifluoromethyl group~~, or halogen atom.)

~~General formula [IV]~~



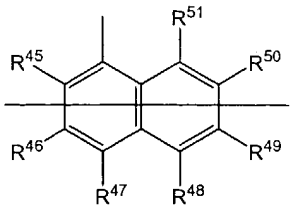
~~(where R^{35} and R^{36} are identical or different groups, each denoting an aryl group represented by the general formula (4) below.)~~

~~General formula (4)~~



~~(where R^{40}, R^{41}, R^{42}, R^{43}, and R^{44} are identical or different groups, each denoting hydrogen or at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group having one or more carbons; and R^{34} and R^{37} are identical or different groups, at least one of them being an aryl group represented by the general formula (5) below.)~~

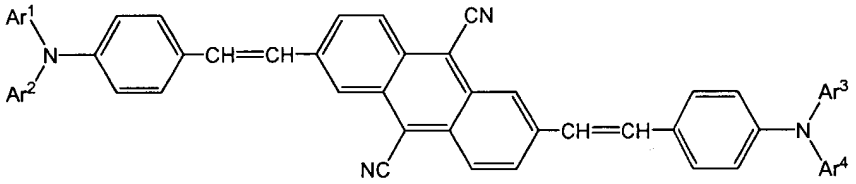
~~General formula (5)~~



~~(where R^{45}, R^{46}, R^{47}, R^{48}, R^{49}, R^{50}, and R^{51} are identical or different groups, each denoting a hydrogen atom or at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group, or hydrocarbon amino group having one or more carbons; and R^{38} and R^{39} are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)~~

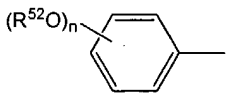
2. (Currently amended) A bis(aminostyryl)anthracene compound represented by ~~the general~~ formula (6) ~~below.~~

~~General~~ formula (6)

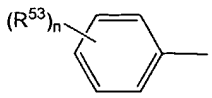


(where Ar^1, Ar^2, Ar^3, and Ar^4 are identical or different, each denoting an aryl group which may have a substituent, and if a substituent is present, said aryl group being one which is selected from aryl groups represented by ~~the general~~ formula (7), (8), and (9)~~, (10), (11), (12), (12'), or (12") below.~~

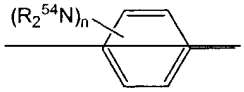
~~General~~ formula (7)



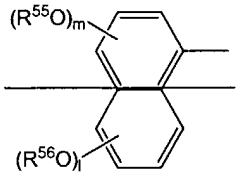
~~General~~ formula (8)



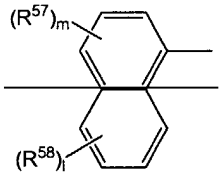
~~General formula (9)~~



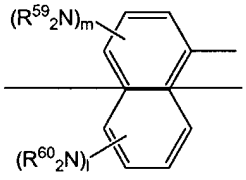
~~General formula (10)~~



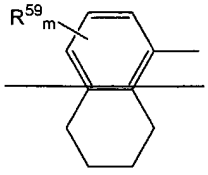
~~General formula (11)~~



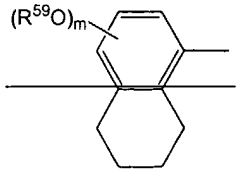
~~General formula (12)~~



~~General formula (12')~~



~~General formula (12")~~

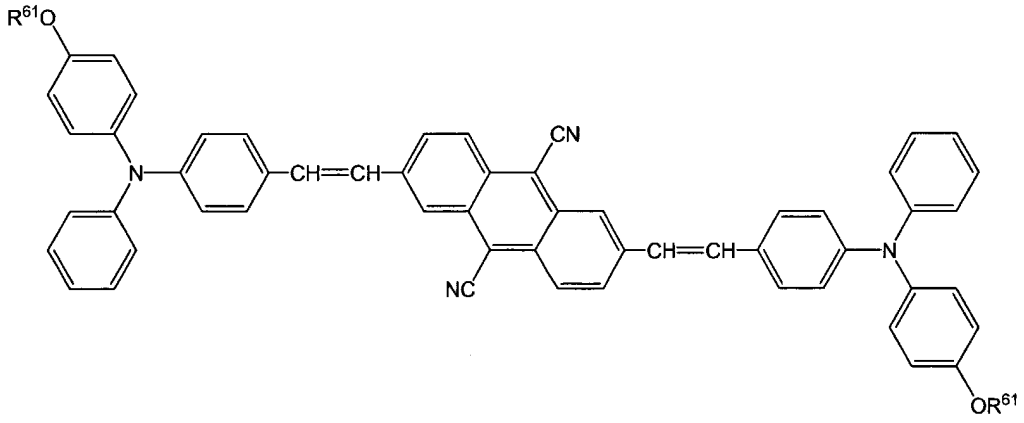


~~(~~where R^{52}, R^{53}~~, and R^{54}~~ each denotes a saturated or unsaturated hydrocarbon group having one or more carbons; R^{55}~~, R^{56}~~, R^{57}~~, R^{58}~~, R^{59}~~, and R^{60}~~ are identical or different, each denoting a saturated or unsaturated hydrocarbon group having one or more carbons;~~ n is an integer of 0 to 6; ~~m is an integer of 0 to 3; and l is an integer of 0 to 4.)~~

3. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 2, wherein R^{52}, R^{53}, R^{54}, ~~R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60}~~ each has ~~a carbon number of 1 to 6~~ from 1 to 6 carbons.

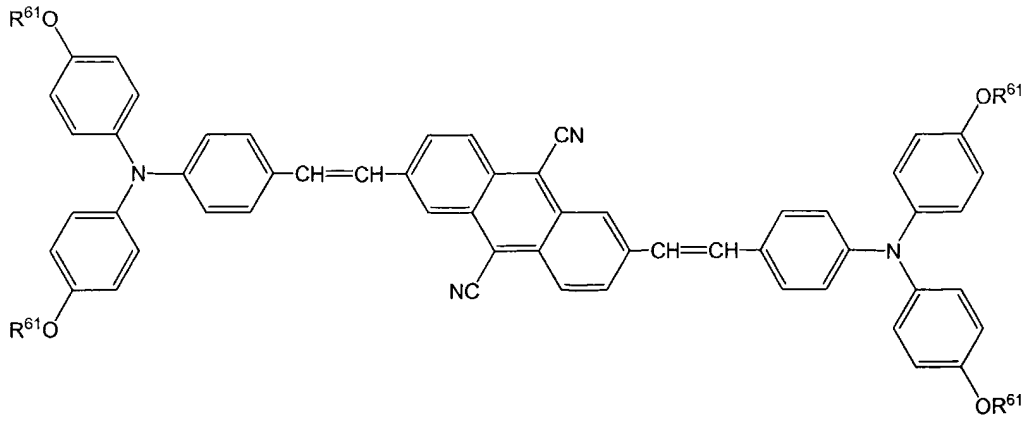
4. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 1 or 2 which is represented by ~~the general~~ formula (13), (13'), (14), (15)~~, (16), (17), (17'), or (17")~~ ~~below.~~

~~General~~ formula (13)



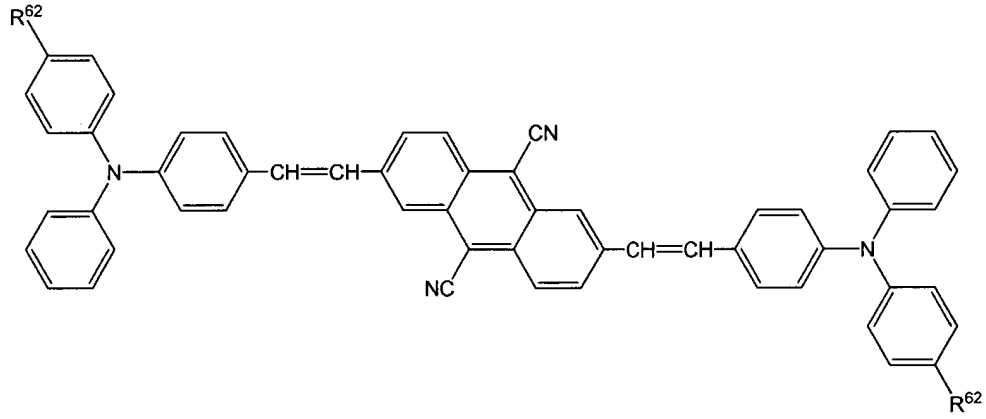
~~(~~where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms~~.)~~

~~General~~ formula (13')



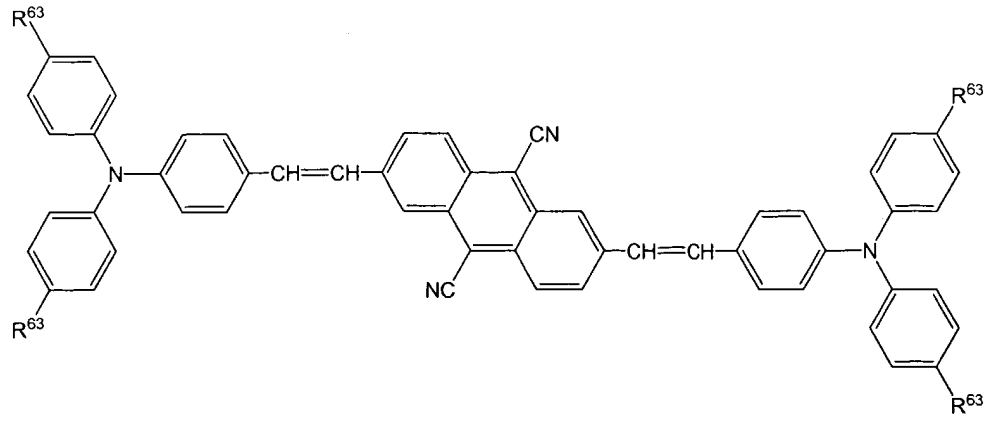
(where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

~~General~~ formula (14)



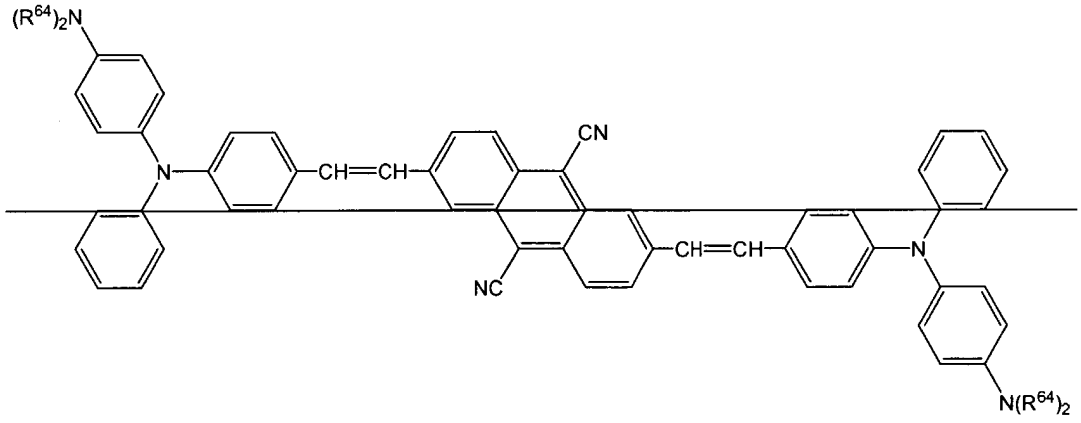
(where R^{62} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

~~General~~ formula (15)



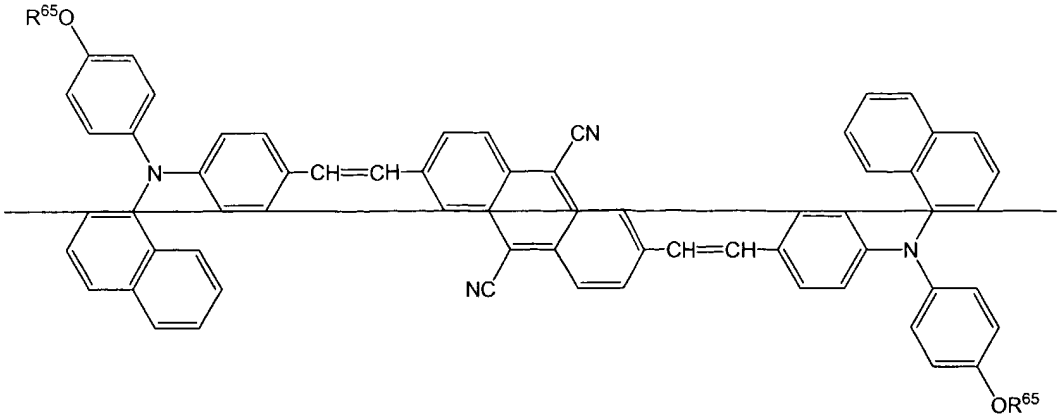
(where R^{63} denotes a saturated or unsaturated hydrocarbon group or hydrocarbon oxy group having 1 to 6 carbon atoms.)

~~General formula (16)~~



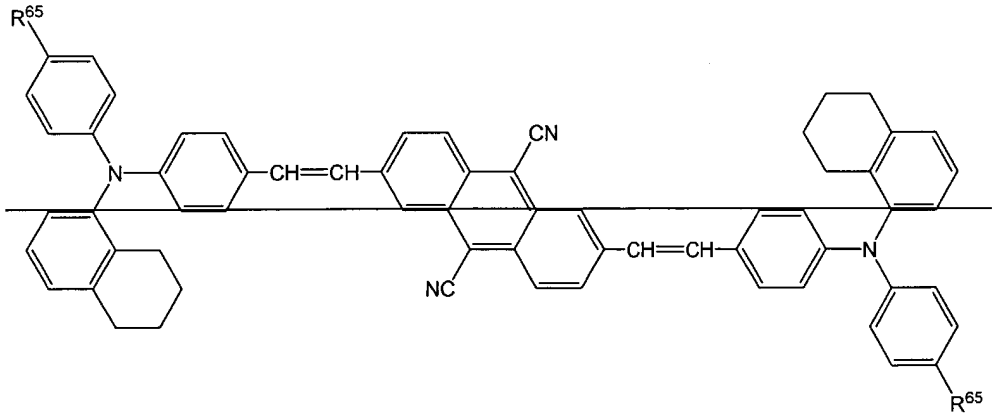
~~(where R^{64} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

~~General formula (17)~~



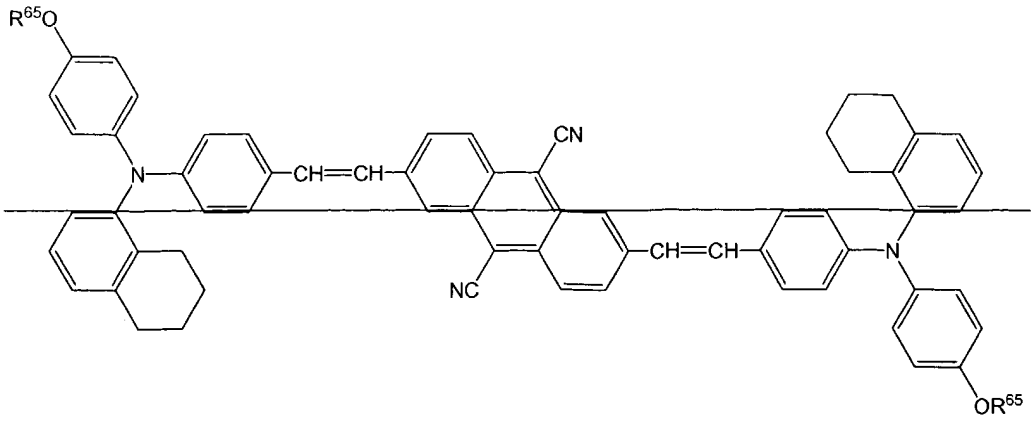
~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

~~General formula (17')~~



~~(where R^{65} denotes a hydrogen atom or a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

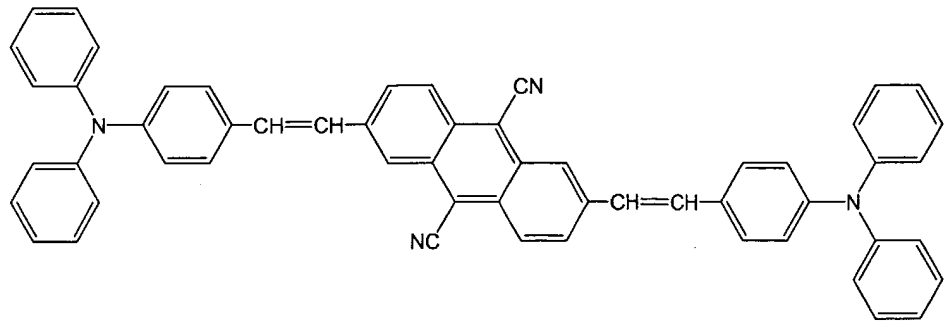
~~General formula (17")~~



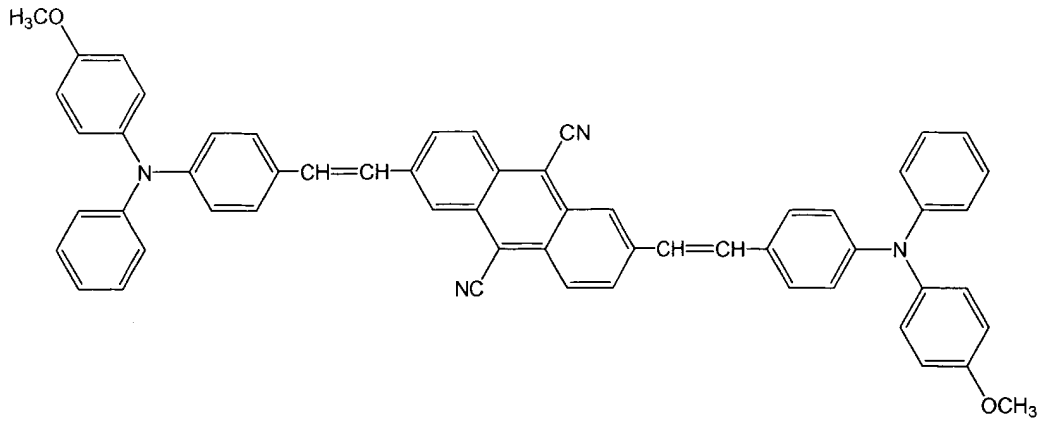
~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

5. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 1 or 2 which is represented by ~~the structural~~ formulae (18)-1, (18)-2, (18)-2', (18)-3, (18)-4, ~~(18)-5, (18)-6, (18)-6', (18)-7, (18)-8, (18)-9, (18)-10, (18)-10', (18)-10",~~ or (18)-11 ~~below.~~

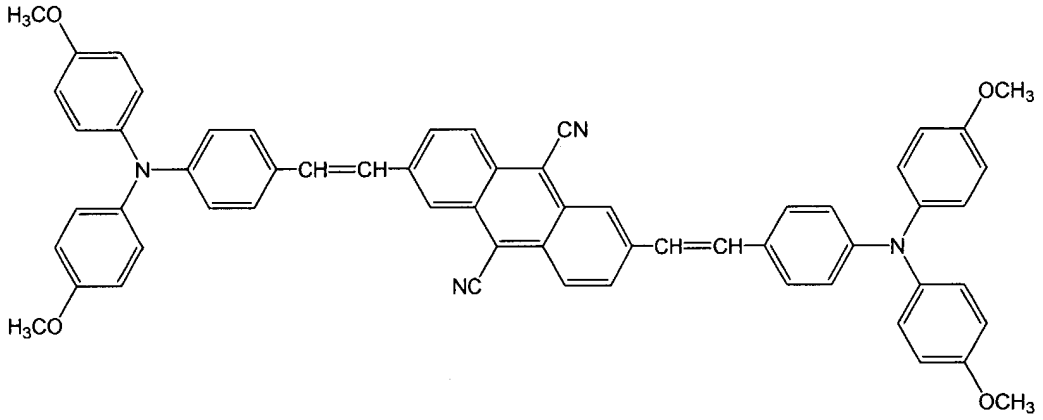
~~Structural~~ formula (18)-1



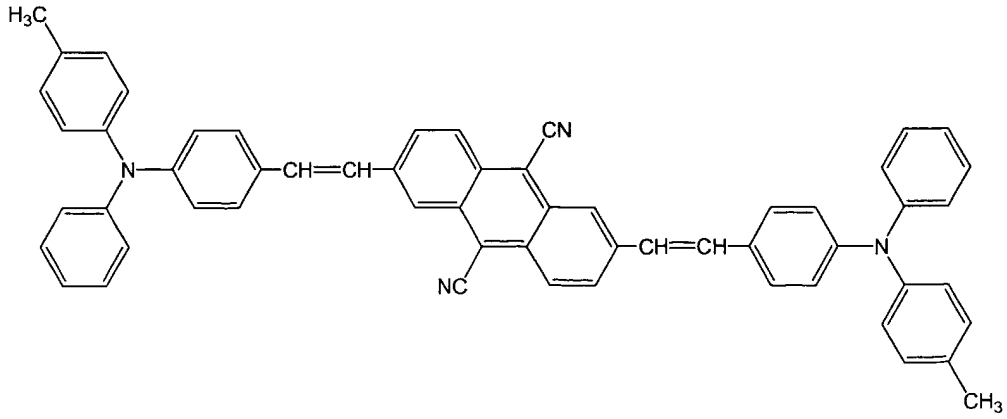
~~Structural~~ formula (18)-2



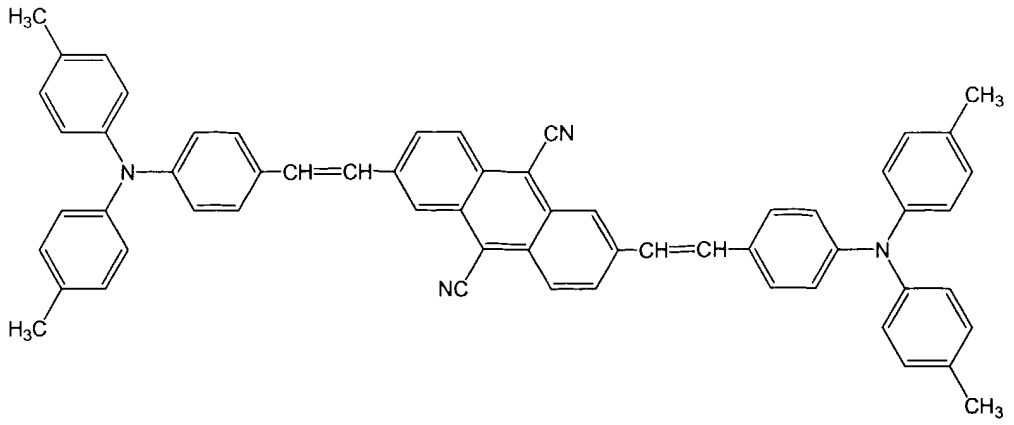
~~Structural~~ formula (18)-2'



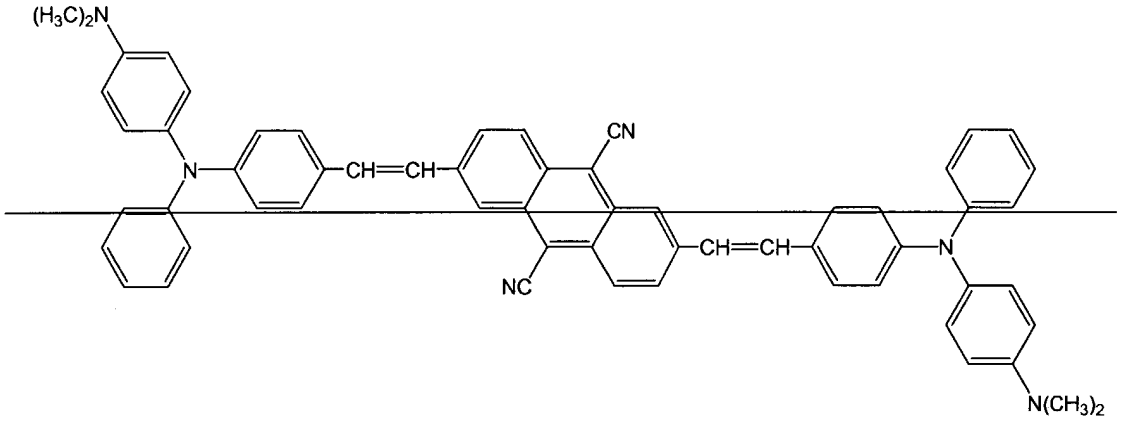
~~Structural~~ formula (18)-3



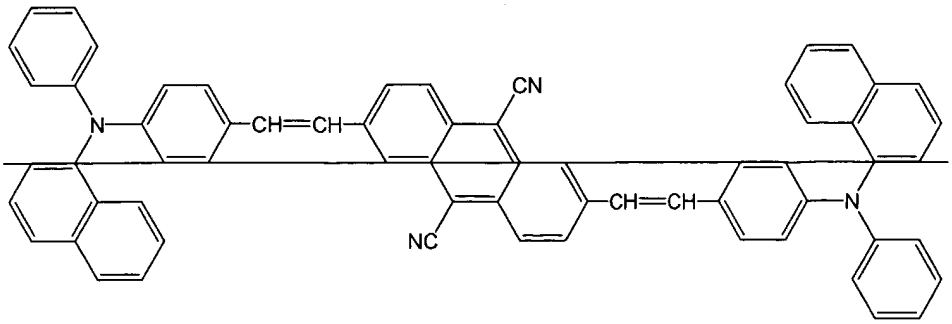
~~Structural~~ formula (18)-4



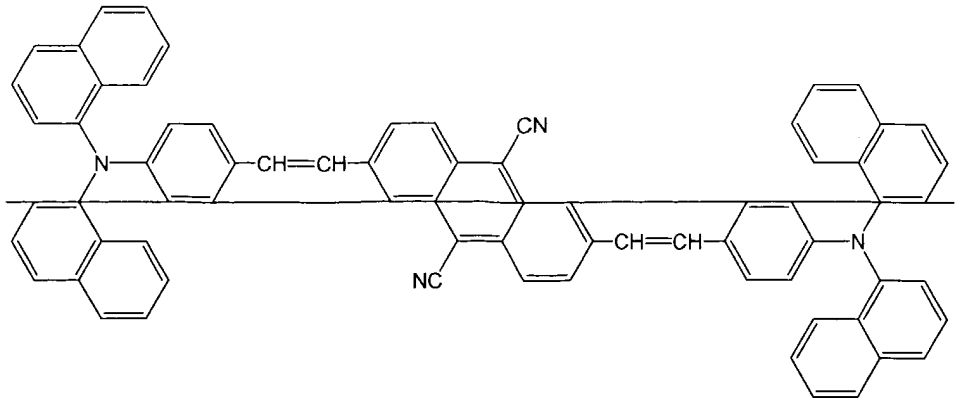
~~Structural formula (18)-5~~



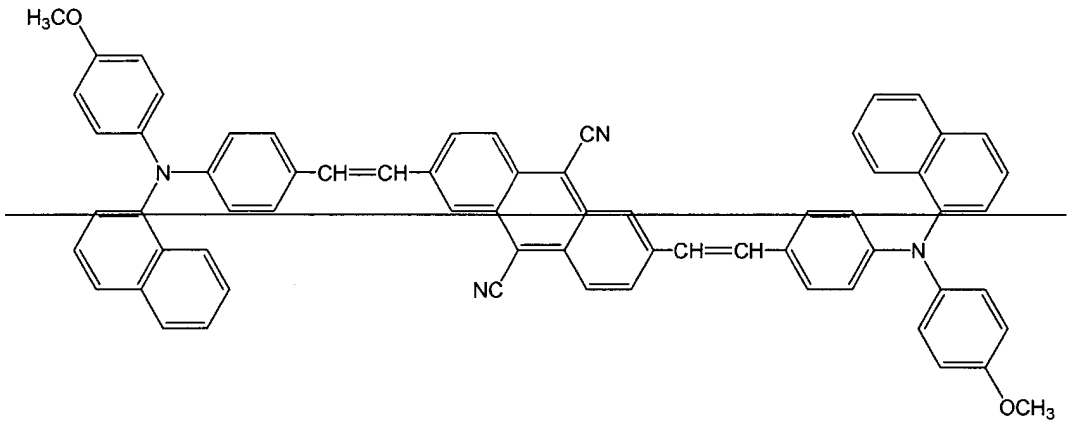
~~Structural formula (18)-6~~



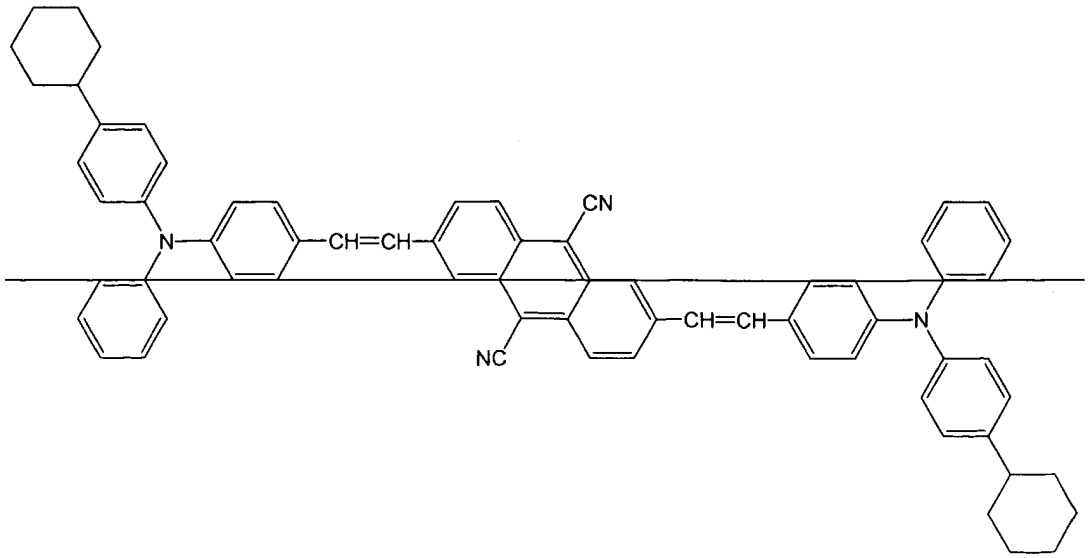
~~Structural formula (18)-6'~~



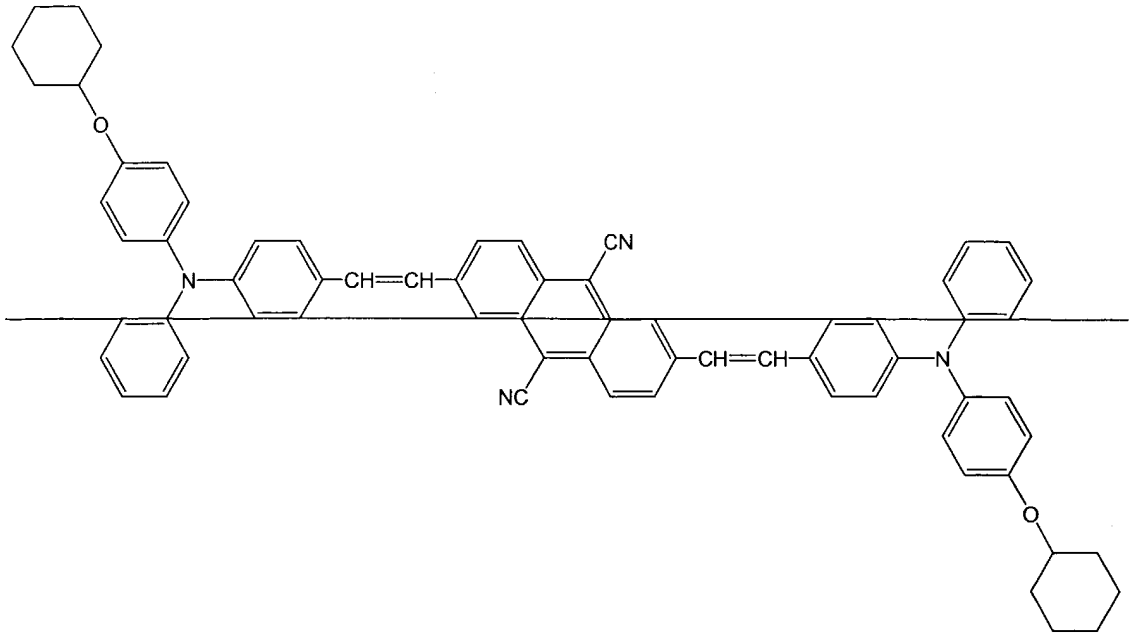
~~Structural formula (18) 7~~



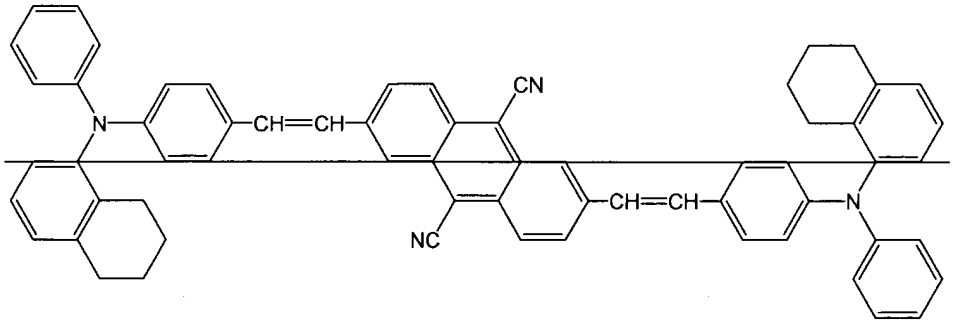
~~Structural formula (18) 8~~



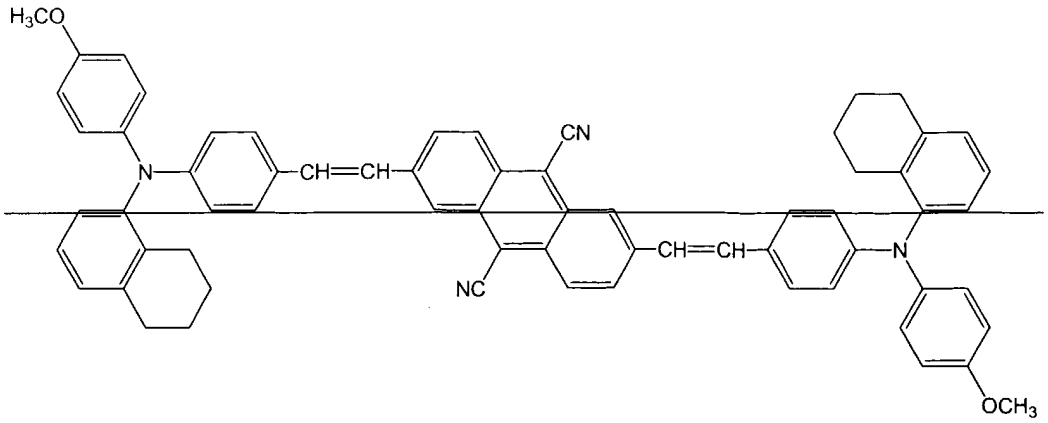
~~Structural formula (18)-9~~



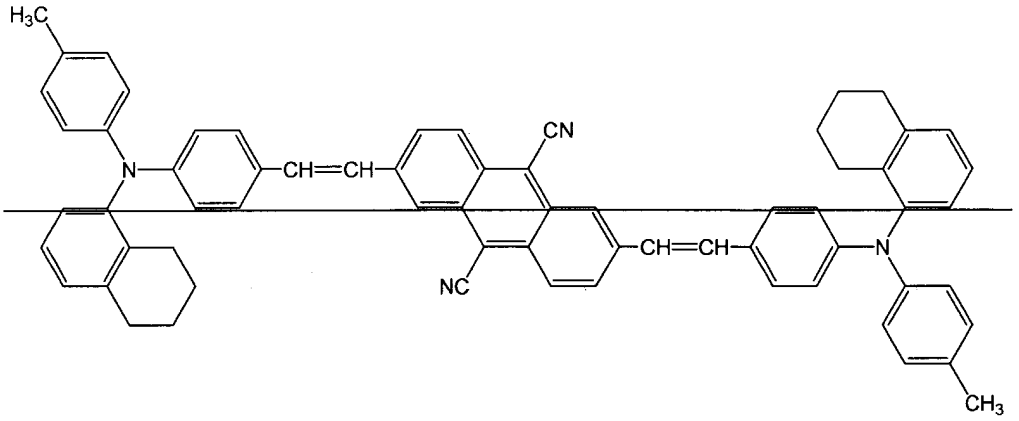
~~Structural formula (18)-10~~



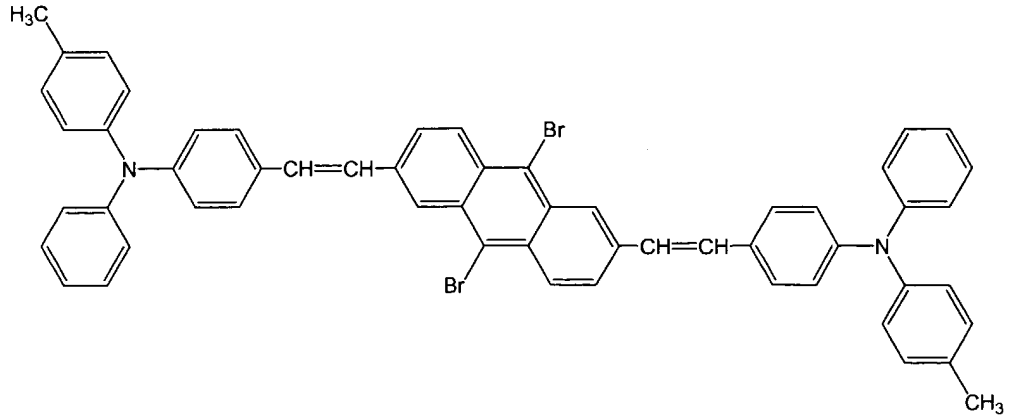
~~Structural formula (18)-10'~~



~~Structural formula (18)-10"~~

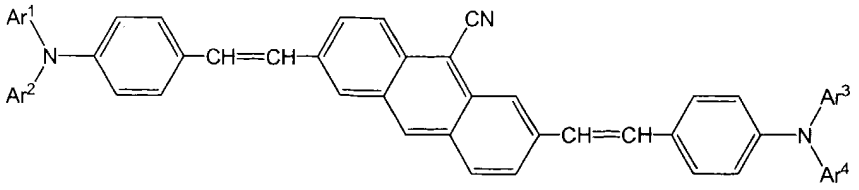


~~Structural~~ formula (18)-11



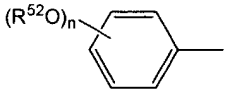
6. (Currently amended) A bis(aminostyryl)anthracene compound represented by ~~the general~~ formula (19) ~~below.~~

~~General~~ formula (19)

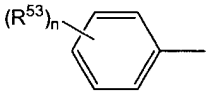


(where Ar^1, Ar^2, Ar^3, and Ar^4 are identical or different, each denoting an aryl group which may have a substituent, and if a substituent is present, said aryl group being one which is selected from aryl groups represented by the general formula (7), (8)~~, (9), (10), (11), (12), (12'), or (12") below.~~

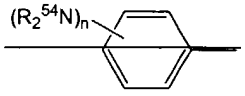
~~General~~ formula (7)



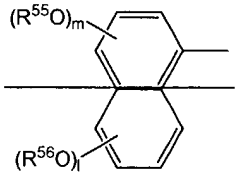
~~General~~ formula (8)



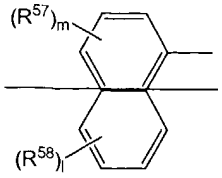
~~General formula (9)~~



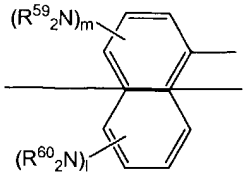
~~General formula (10)~~



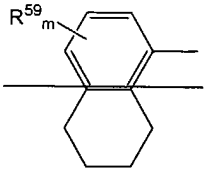
~~General formula (11)~~



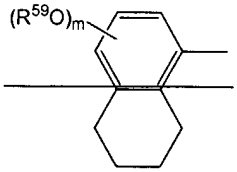
~~General formula (12)~~



~~General formula (12')~~



~~General formula (12")~~

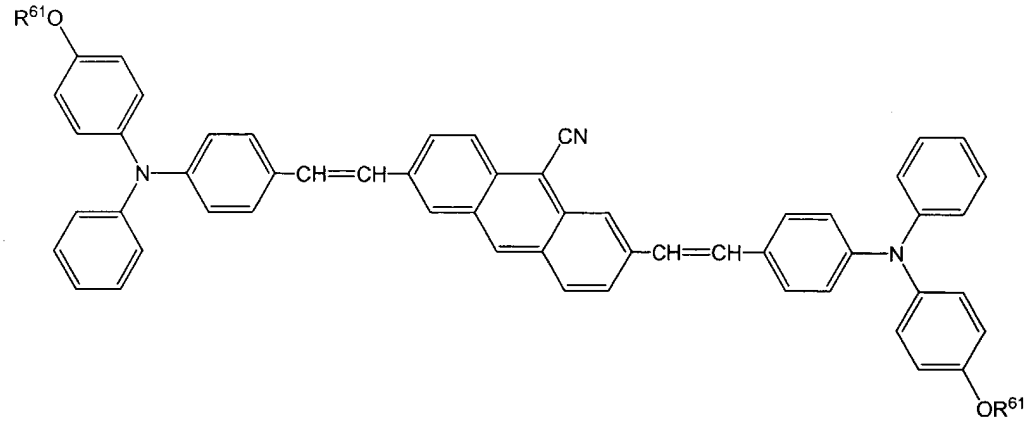


~~(~~where R^{52}, R^{53}, ~~and R^{54}~~ each denotes a saturated or unsaturated hydrocarbon group having one or more carbons; ~~R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} are identical or different, each denoting a saturated or unsaturated hydrocarbon group having one or more carbons;~~ n is an integer of 0 to 6~~; m is an integer of 0 to 3; and l is an integer of 0 to 4.)~~.

7. (Currently amended) A bis(aminostyryl)anthracene compound as defined in ~~Claim~~ claim 6, wherein R^{52}, R^{53}, R^{54}, R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} each has 1 to 6 carbon atoms.

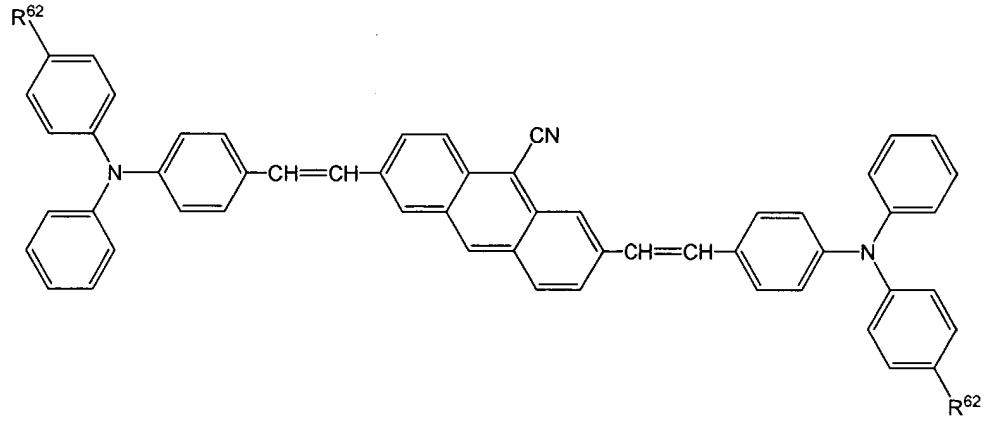
8. (Currently amended) A bis(aminostyryl)anthracene compound as defined in ~~Claim~~ claim 1 or 6 which is represented by ~~the general~~ formula (20), (21), (22), (23), (24), (24') or (24") ~~below.~~

~~General~~ formula (20)



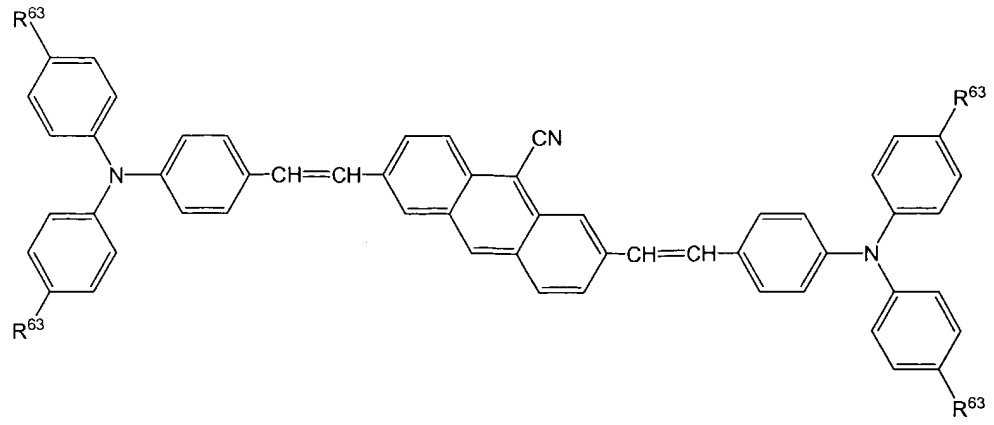
~~(~~where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.~~)~~

~~General~~ formula (21)



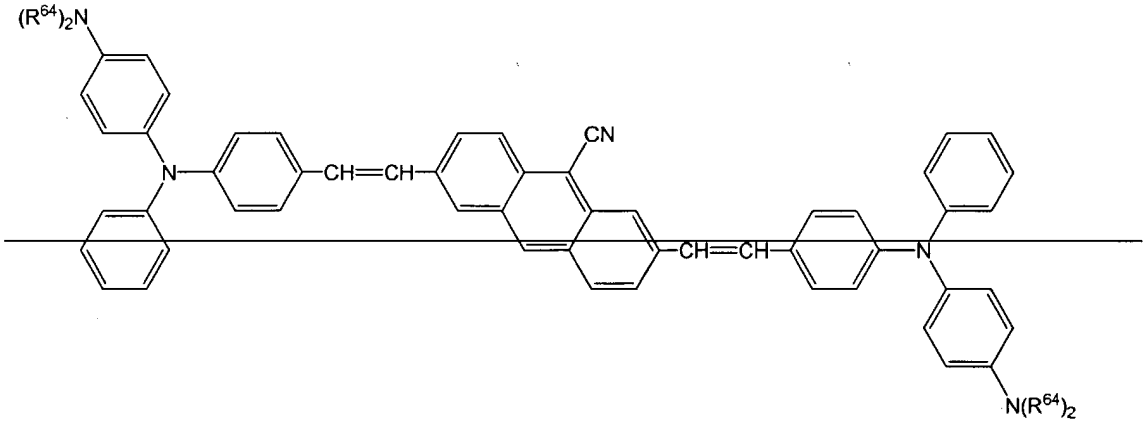
~~(~~where R^{62} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.~~)~~

~~General~~ formula (22)



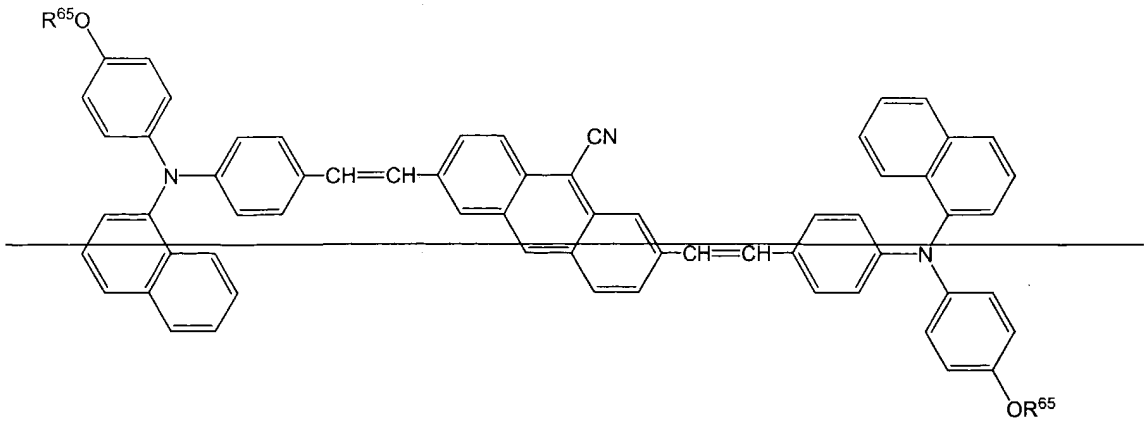
(where R^{63} denotes a saturated or unsaturated hydrocarbon group or hydrocarbon oxy group having 1 to 6 carbon atoms.)

~~General formula (23)~~



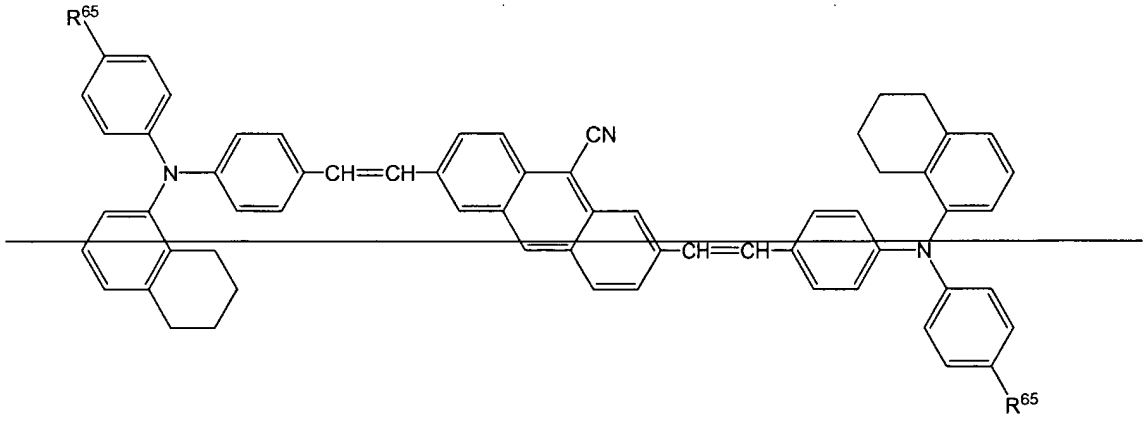
~~(where R^{64} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

~~General formula (24)~~



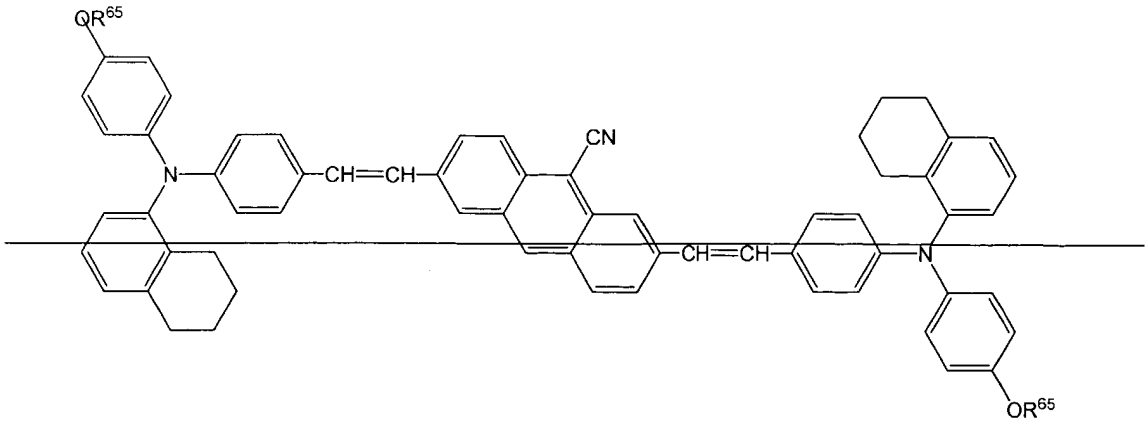
~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

~~General formula (24')~~



~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

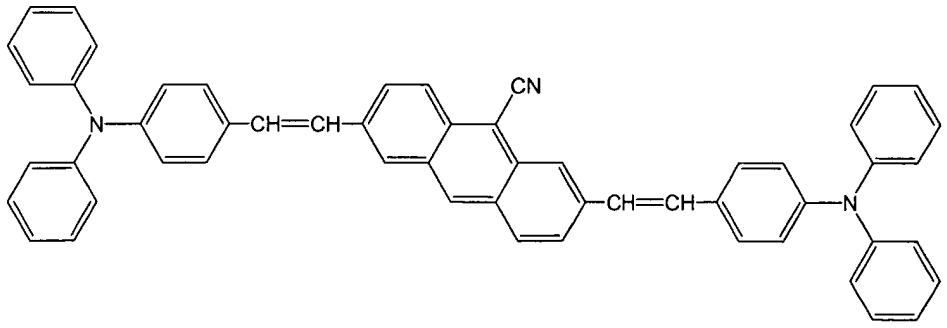
~~General formula (24")~~



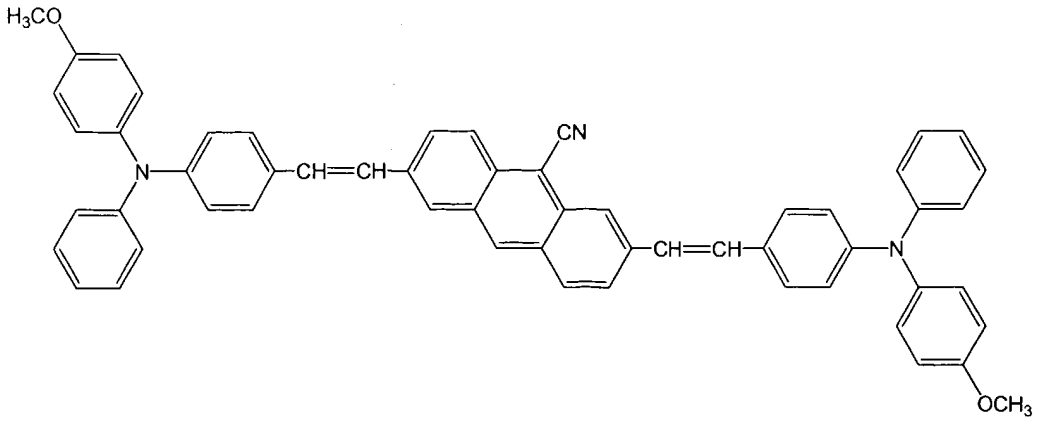
~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

9. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 1 or 6 which is represented by ~~the structural~~ formulae (25)-1, (25)-2, (25)-2', (25)-3, (25)-4, ~~(25)-5, (25)-6, (25)-6', (25)-7, (25)-8, (25)-9, (25)-10, (25)-10', (25)-10",~~ or (25)-11 ~~below.~~

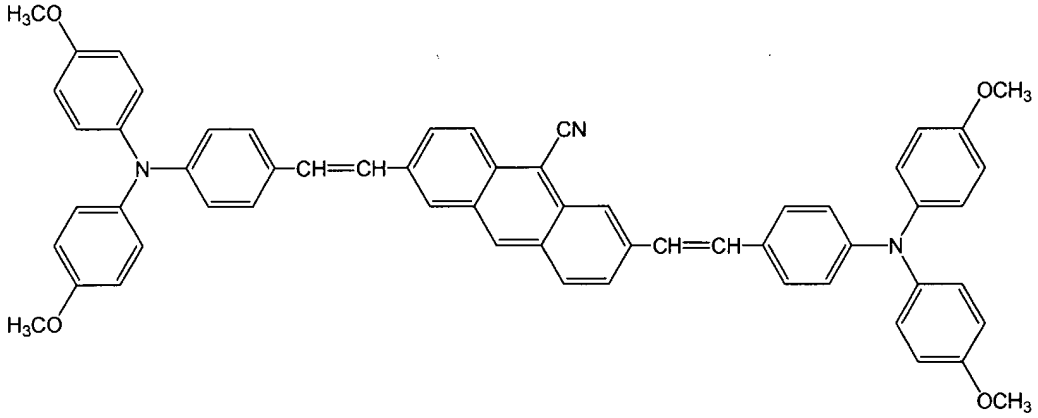
~~Structural~~ formula (25)-1



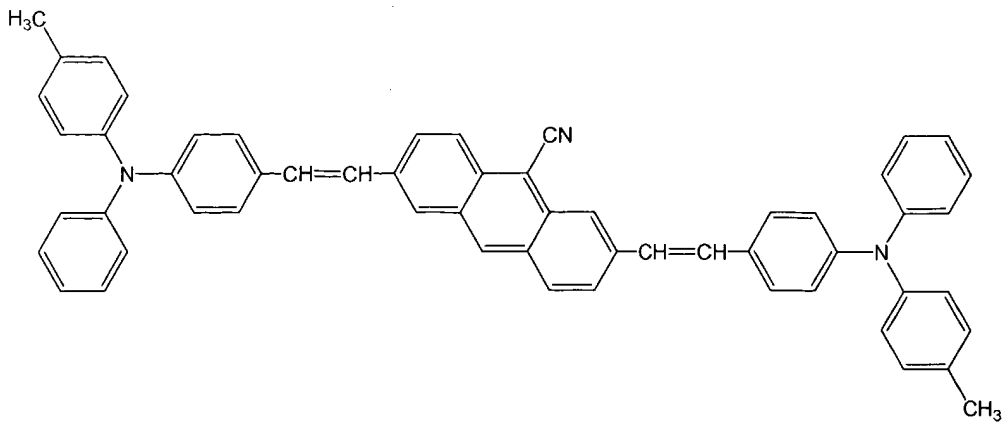
~~Structural~~ formula (25)-2



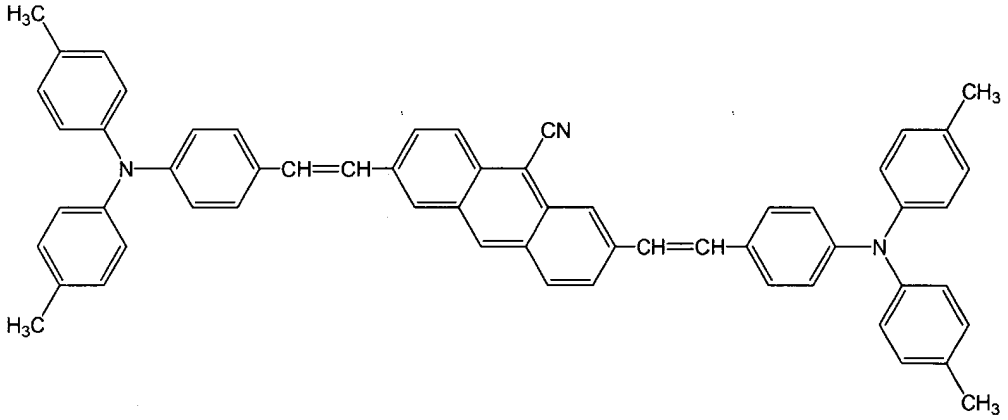
~~Structural~~ formula (25)-2'



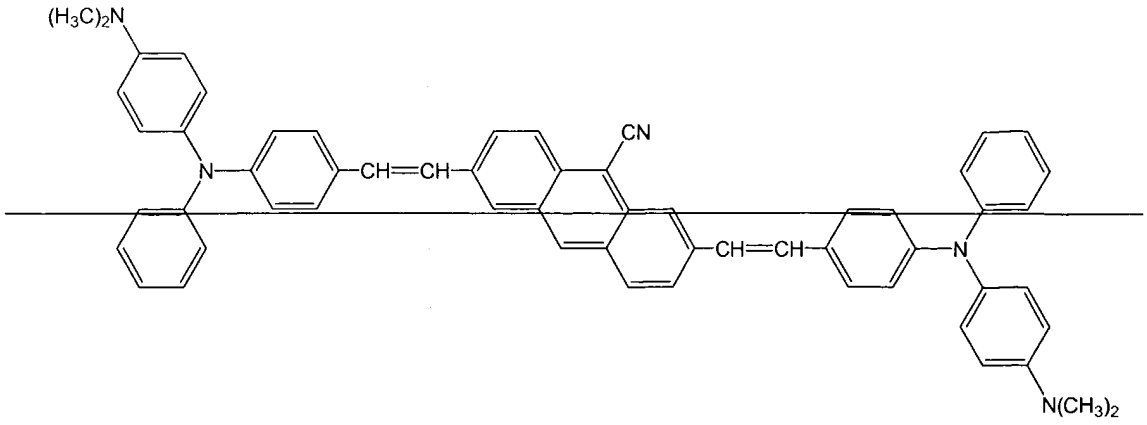
~~Structural~~ formula (25)-3



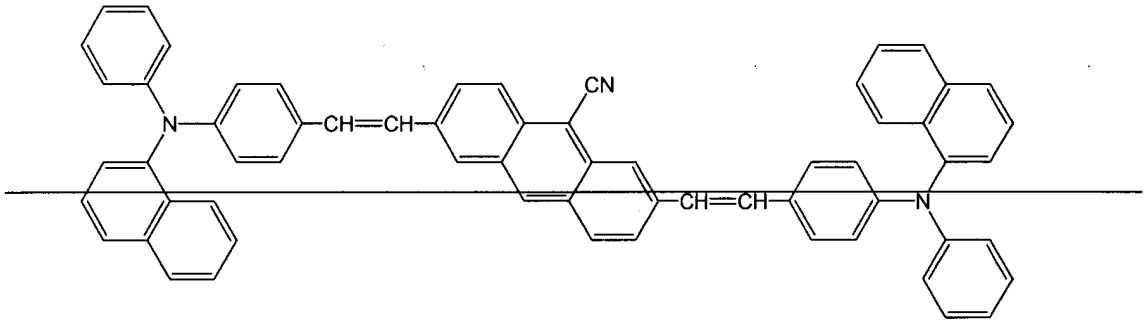
~~Structural~~ formula (25)-4



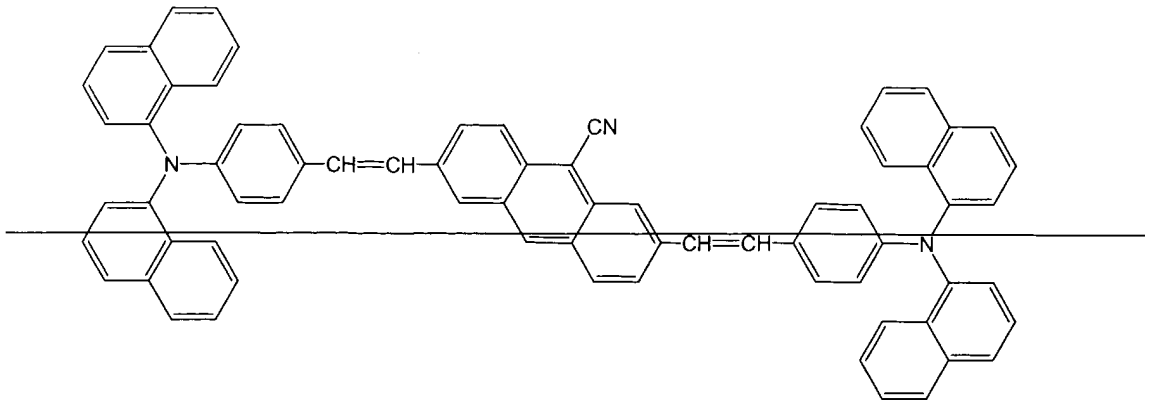
~~Structural formula (25)-5~~



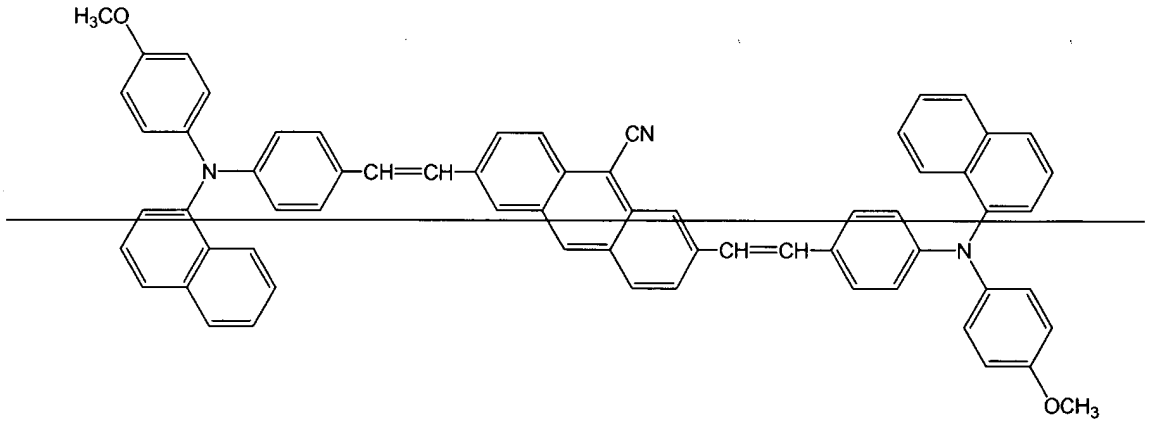
~~Structural formula (25)-6~~



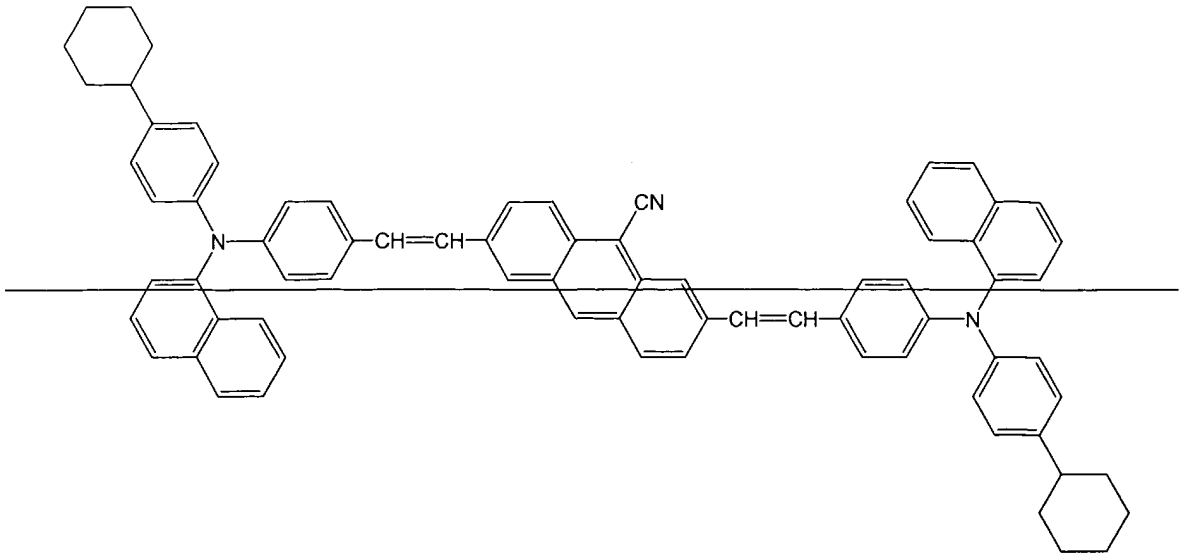
~~Structural formula (25)-6'~~



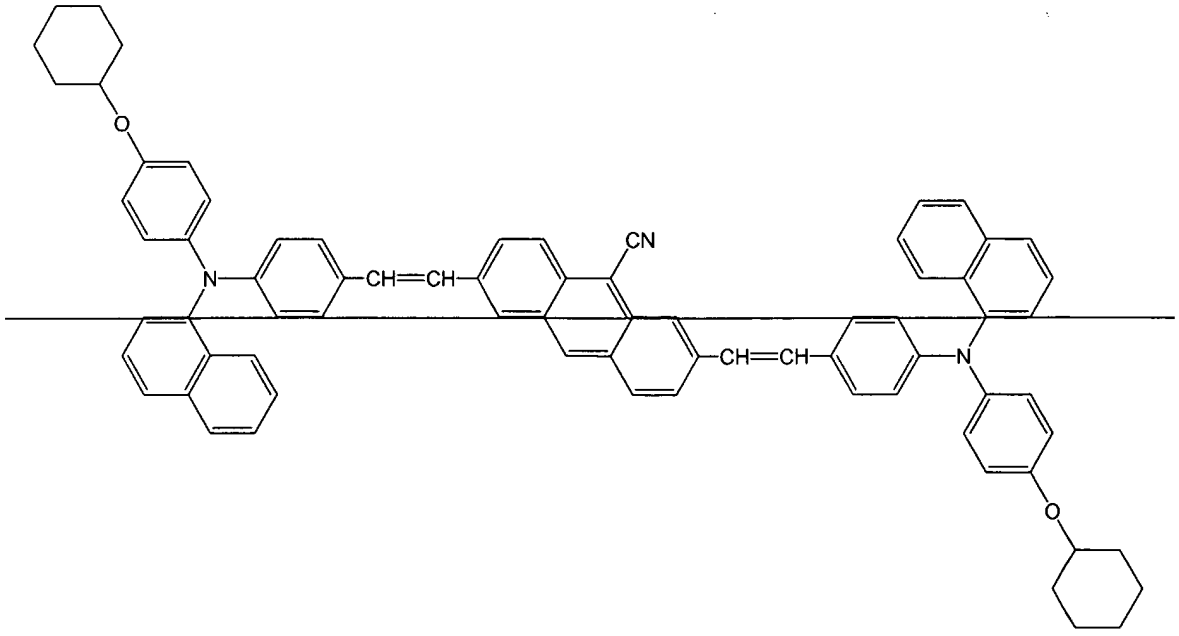
~~Structural formula (25)-7~~



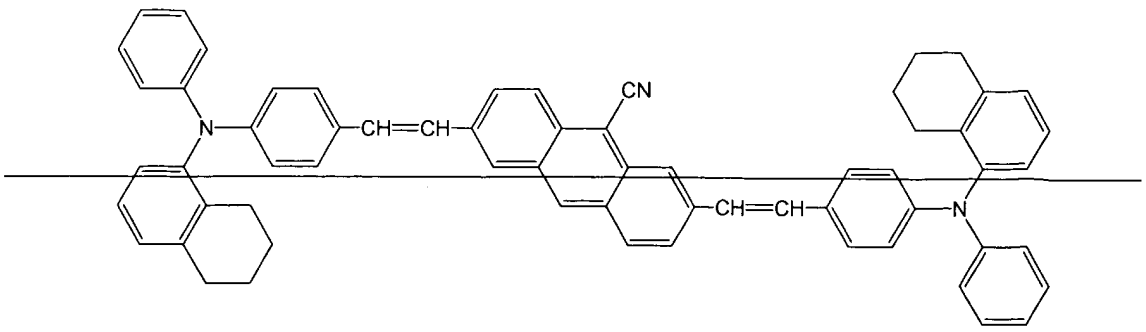
~~Structural formula (25)-8~~



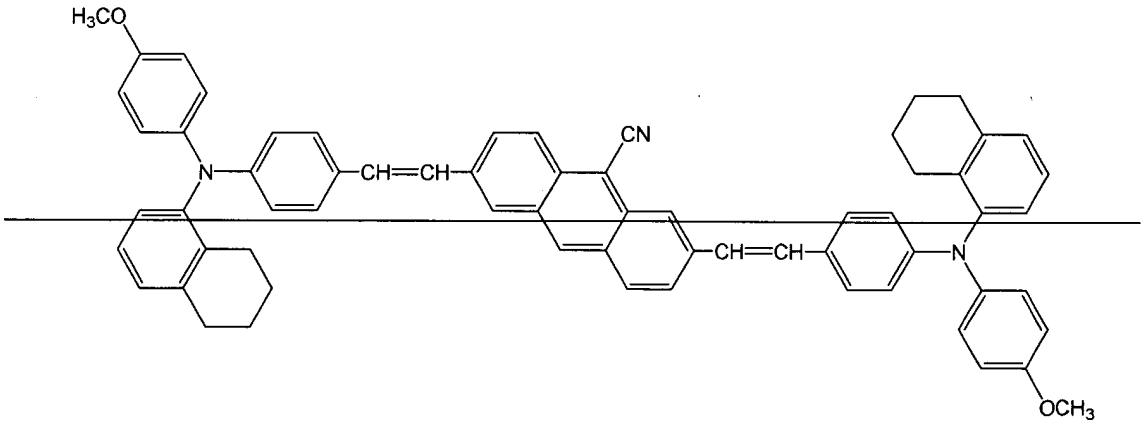
~~Structural formula (25) 9~~



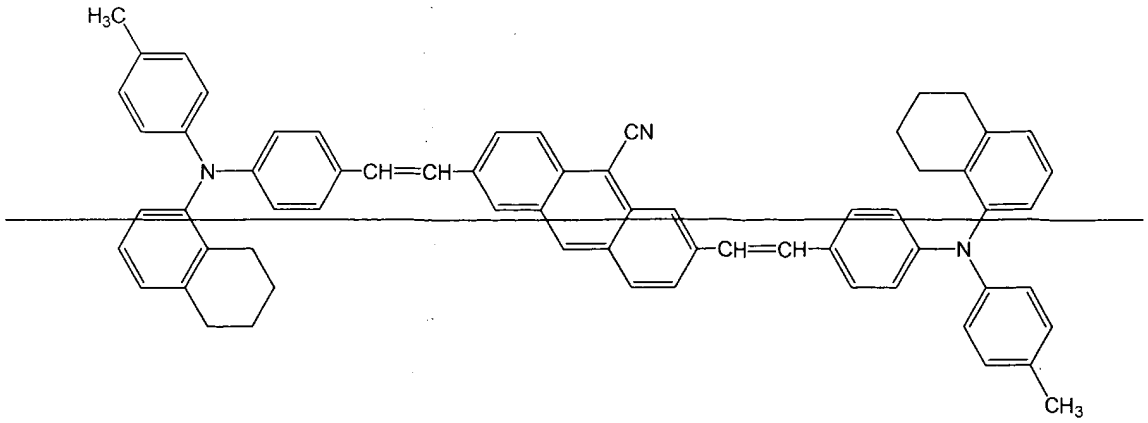
~~Structural formula (25) 10~~



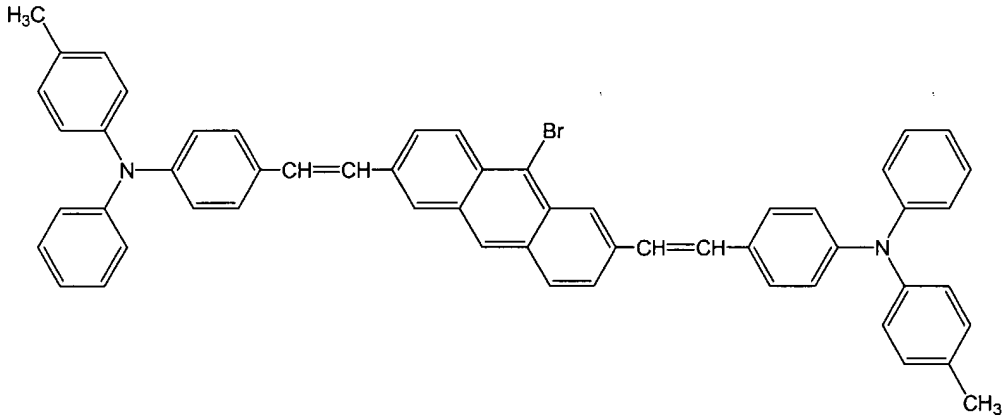
~~Structural formula (25) 10'~~



~~Structural formula (25) 10"~~

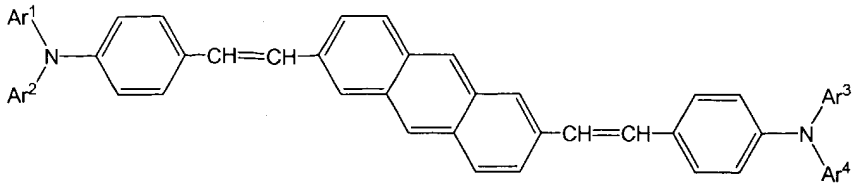


~~Structural~~ formula (25)-11



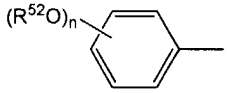
10. (Currently amended) A bis(aminostyryl)anthracene compound which is represented by ~~the general~~ formula (26) ~~below.~~

~~General~~ formula (26)

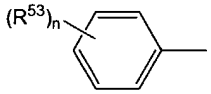


(where Ar^1, Ar^2, Ar^3, and Ar^4 are identical or different, each denoting an aryl group which may have a substituent, and if a substituent is present, said aryl group being one which is selected from aryl groups represented by the general formula (7), (8), (9), (10), (11), (12), (12'), or (12") ~~below.~~

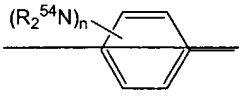
~~General~~ formula (7)



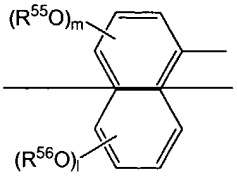
~~General~~ formula (8)



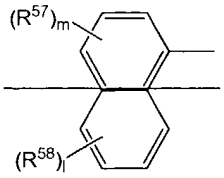
~~General formula (9)~~



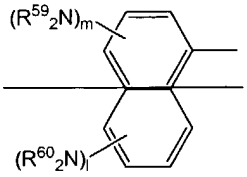
~~General formula (10)~~



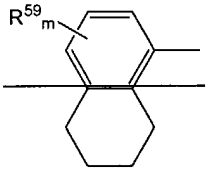
~~General formula (11)~~



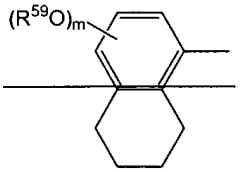
~~General formula (12)~~



~~General formula (12')~~



~~General formula (12")~~

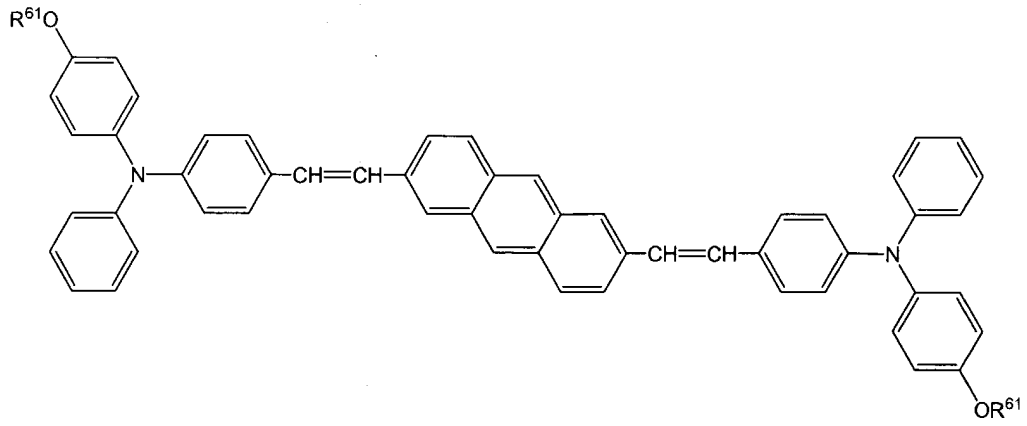


(~~where~~ R^{52}, R^{53}~~, and R^{54} each~~ denotes a saturated or unsaturated hydrocarbon group having one or more carbons; ~~R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} are identical or different, each denoting a saturated or unsaturated hydrocarbon group having one or more carbons;~~ n is an integer of 0 to 6~~; m is an integer of 0 to 3; and l is an integer of 0 to 4.~~).

11. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 10, wherein R^{52}, R^{53}~~, R^{54}, R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60}~~ each has 1 to 6 carbon atoms.

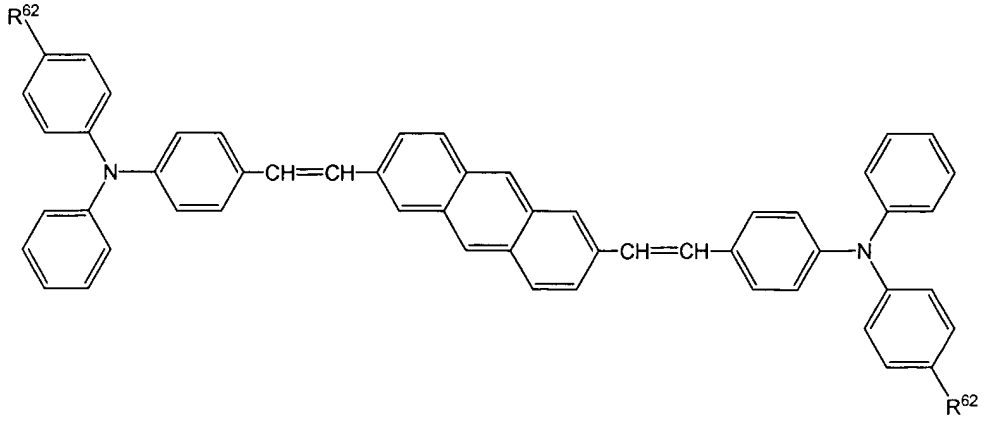
12. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 1 or 10 which is represented by ~~the general~~ formulae (27), (28), (29)~~, (30), (31), (31') or (31") below.~~

~~General~~ formula (27)



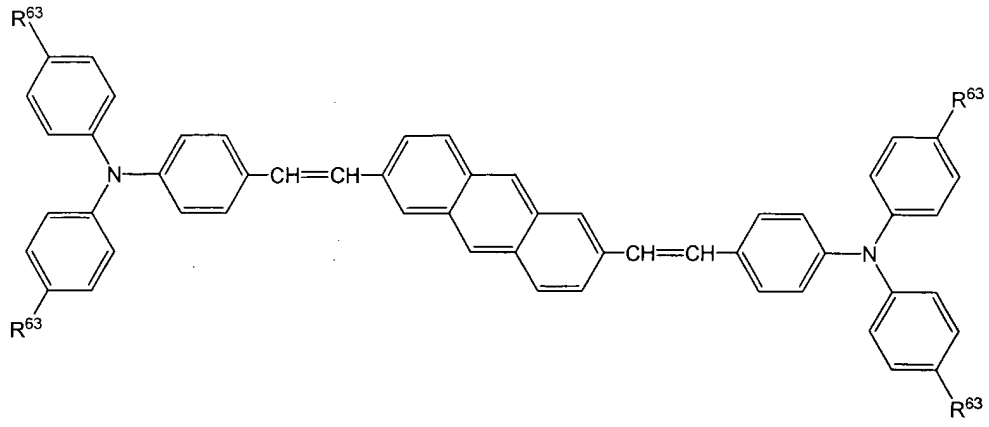
~~(~~where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms~~.)~~

~~General~~ formula (28)



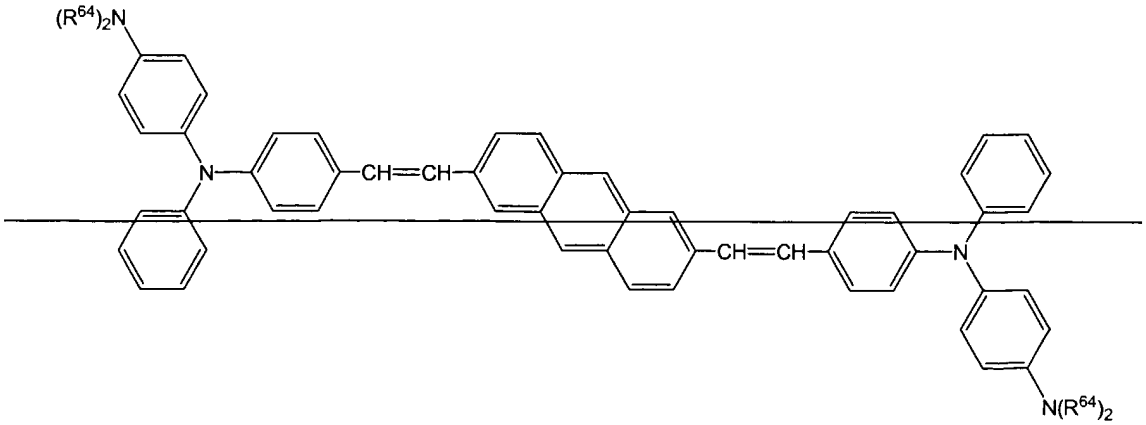
~~(~~where R^{62} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms~~.)~~

~~General~~ formula (29)



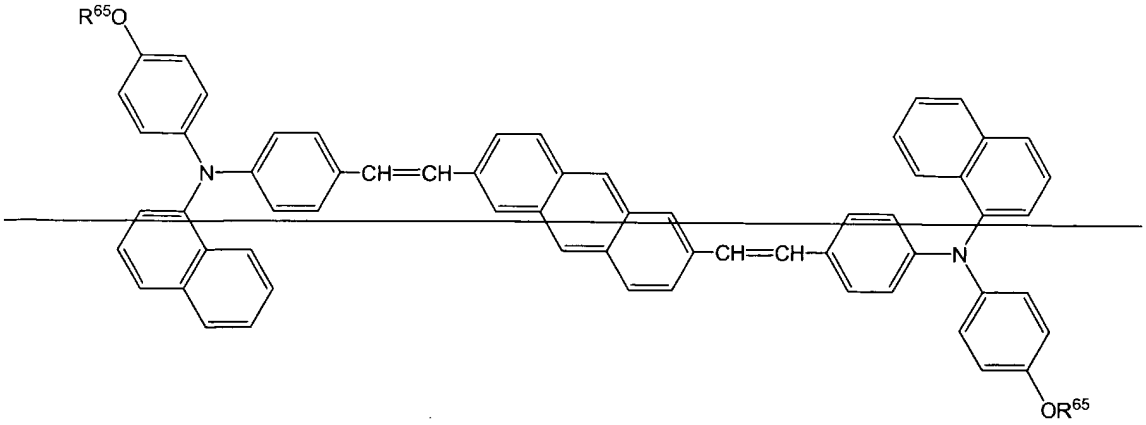
~~(~~where R^{63} denotes a saturated or unsaturated hydrocarbon group or hydrocarbon oxy group having 1 to 6 carbon atoms~~.)~~

~~General formula (30)~~



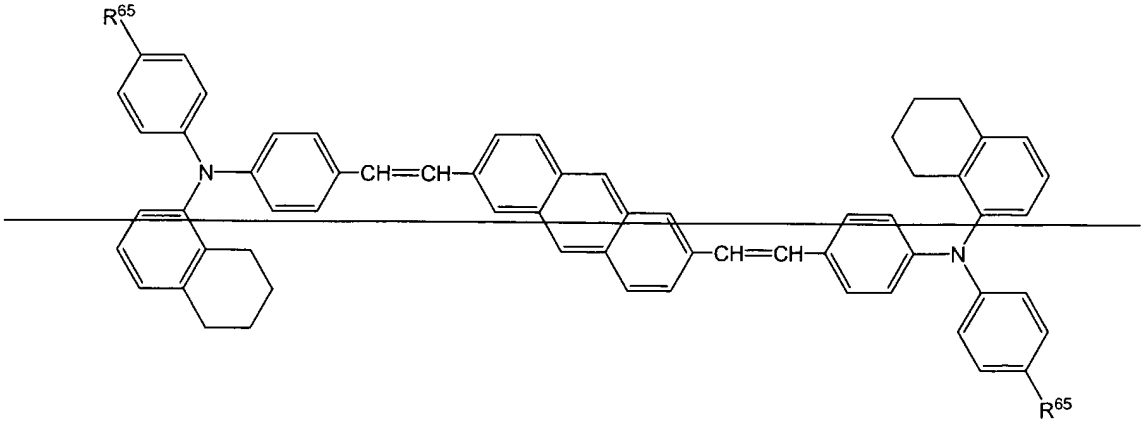
~~(where R^{64} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

~~General formula (31)~~



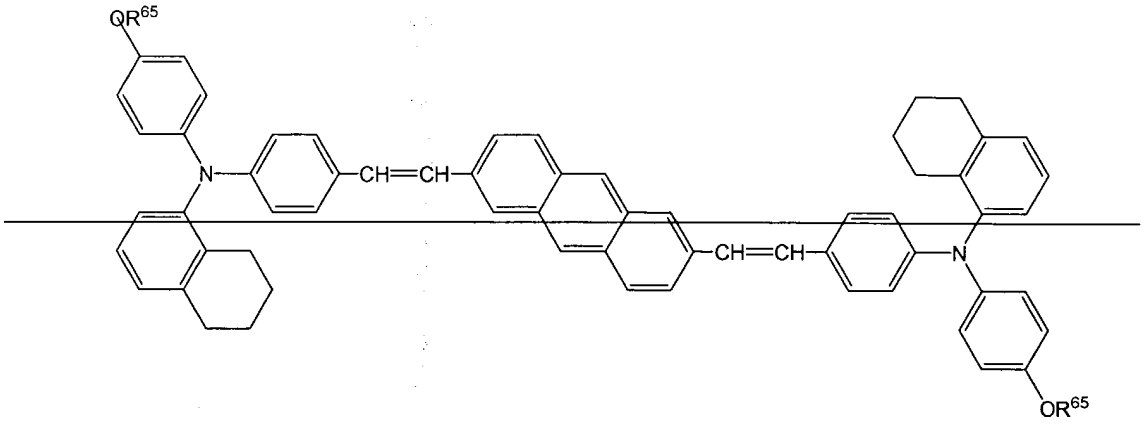
~~where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

~~General formula (31')~~



~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

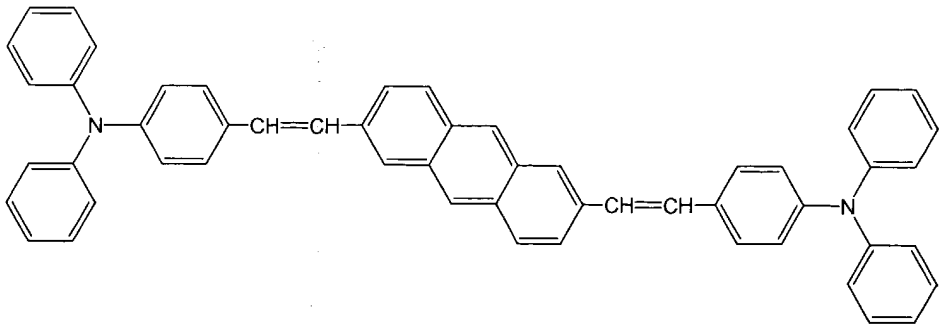
~~General formula (31")~~



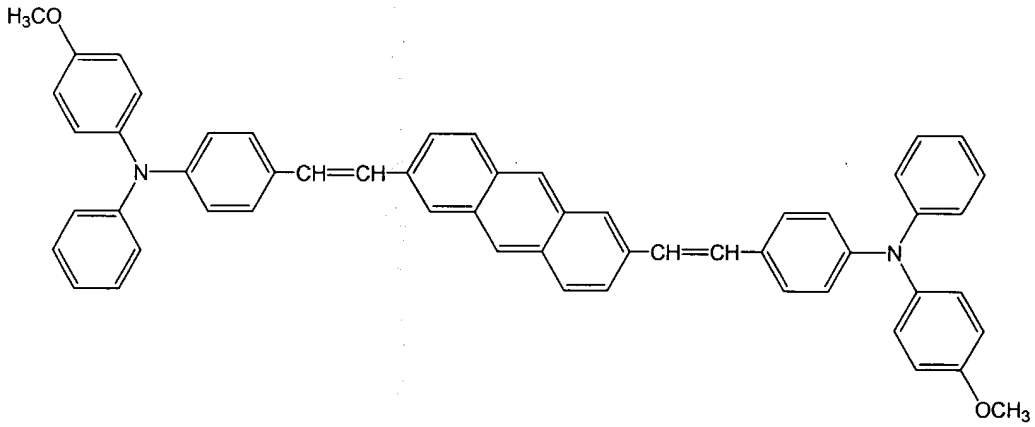
~~(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)~~

13. (Currently amended) A bis(aminostyryl)anthracene compound as defined in Claim 1 or 10 which is represented by ~~the structural~~ formulae (32)-1, (32)-2, (32)-2', (32)-3, (32)-4, ~~(32)-5, (32)-6, (32)-6', (32)-7, (32)-8, (32)-9, (32)-10, (32)-10', or (32)-10" below.~~

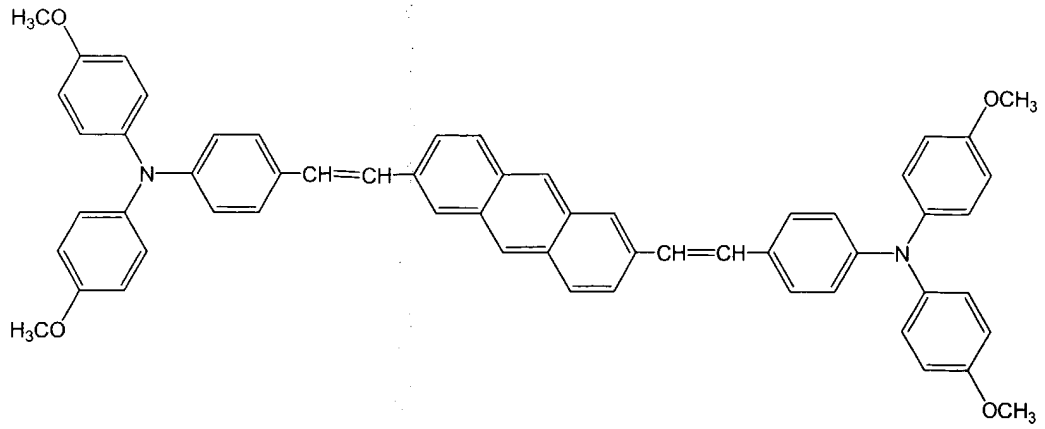
~~Structural~~ formula (32)-1



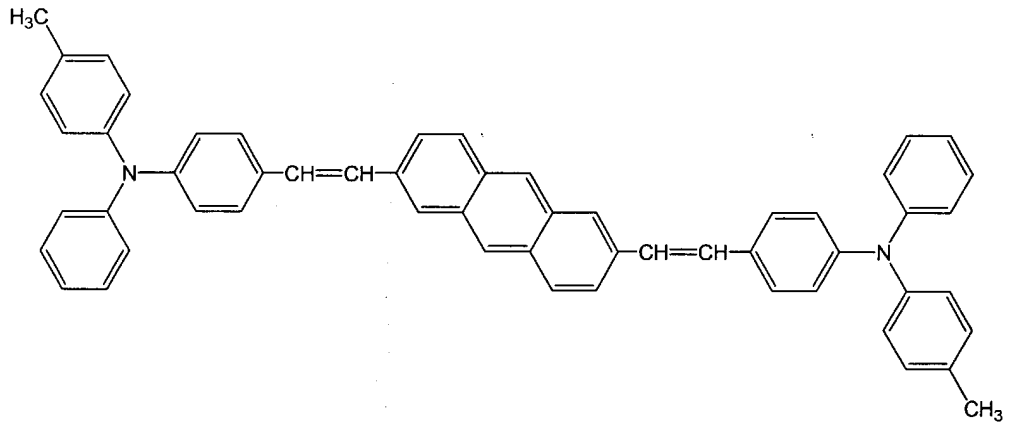
~~Structural~~ formula (32)-2



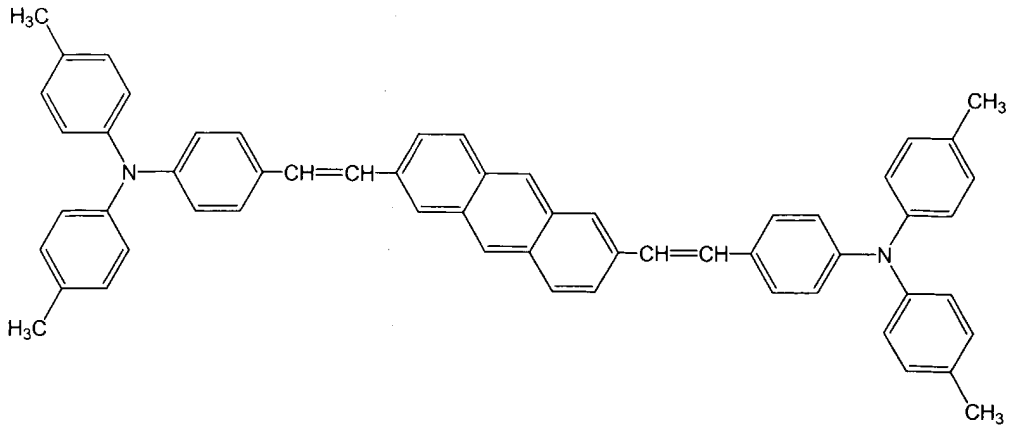
~~Structural~~ formula (32)-2'



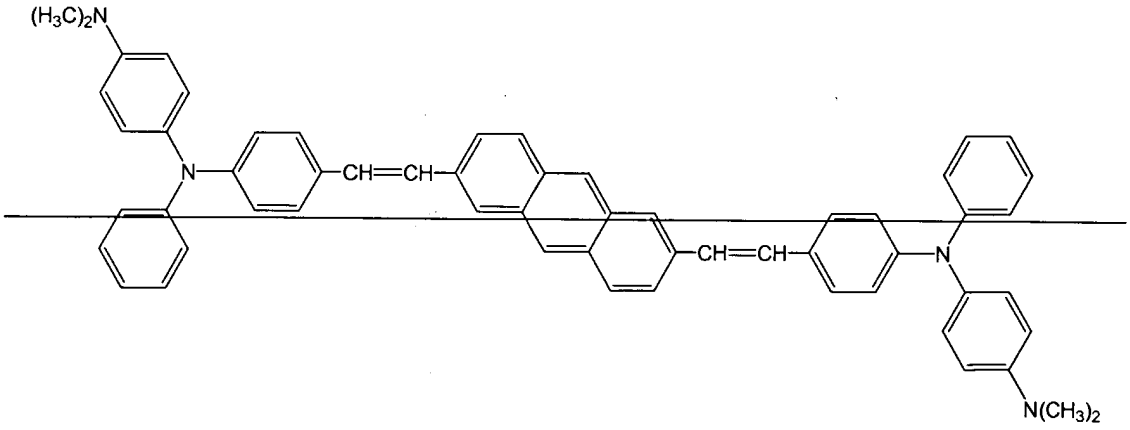
~~Structural~~ formula (32)-3



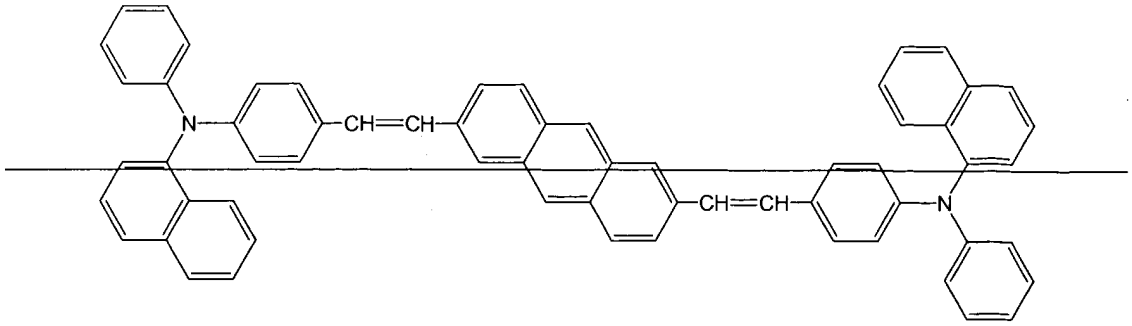
~~Structural~~ formula (32)-4



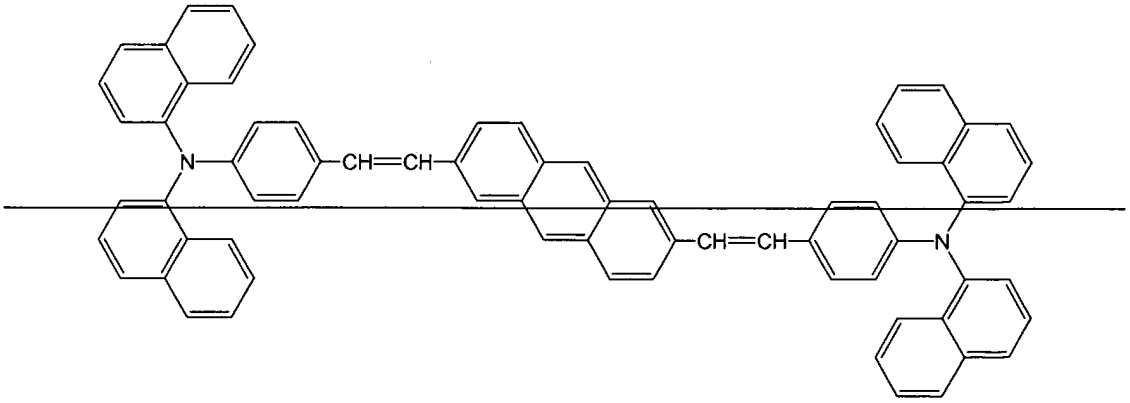
~~Structural formula (32)-5~~



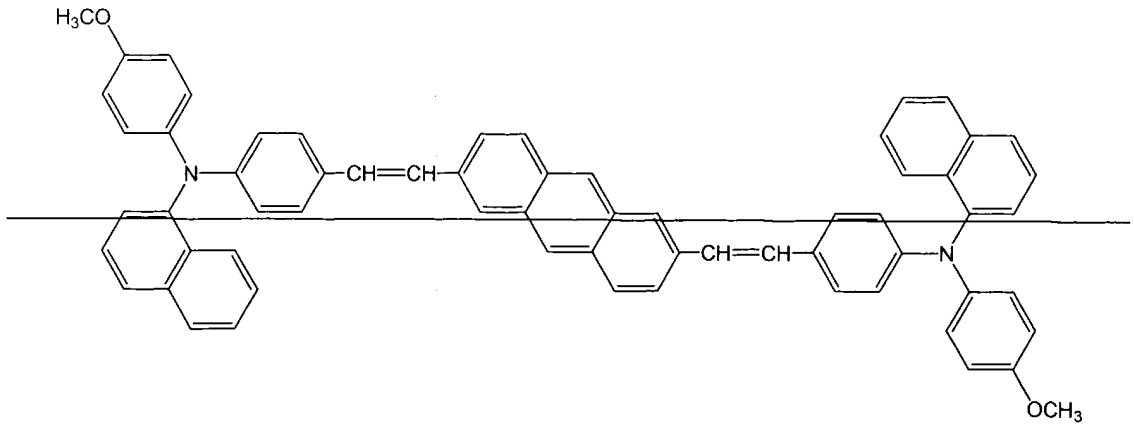
~~Structural formula (32)-6~~



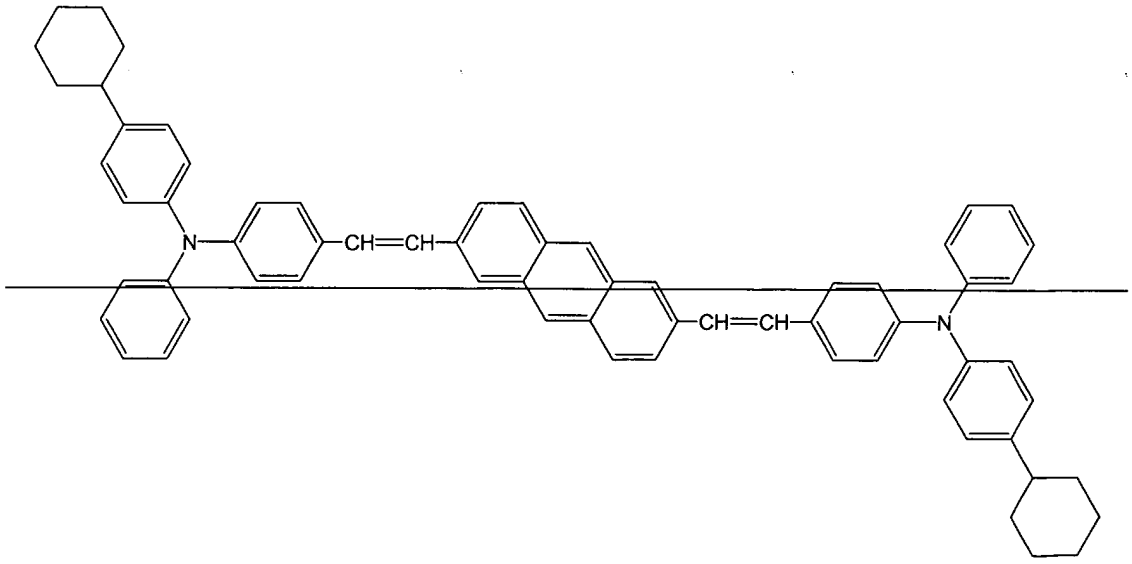
~~Structural formula (32) 6'~~



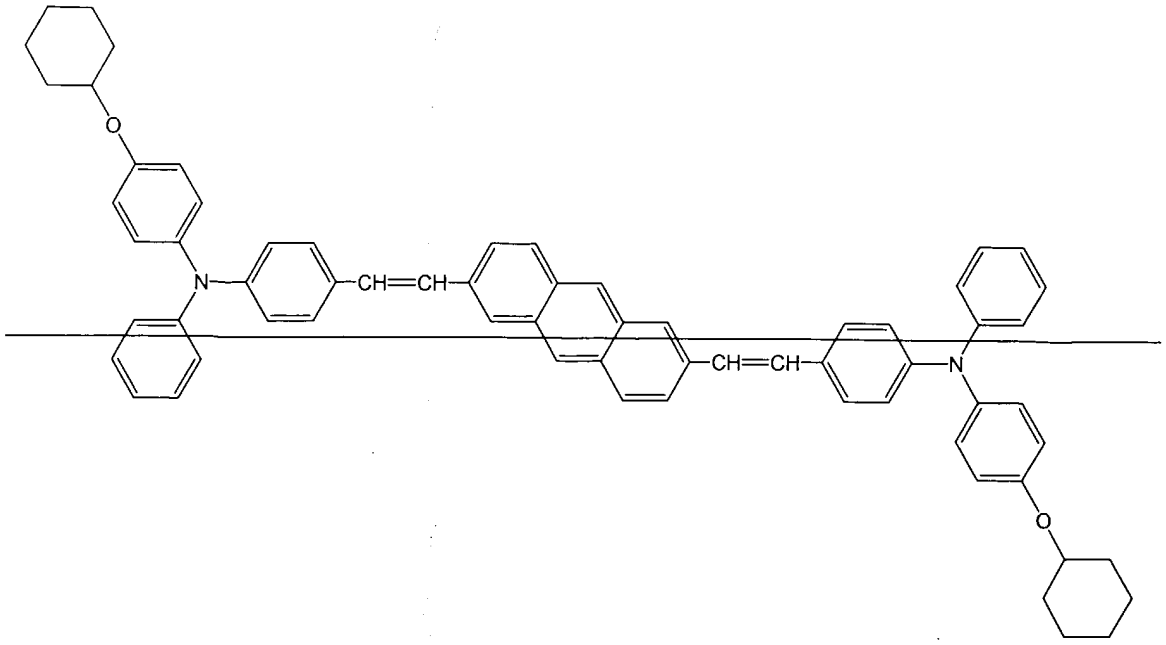
~~Structural formula (32) 7~~



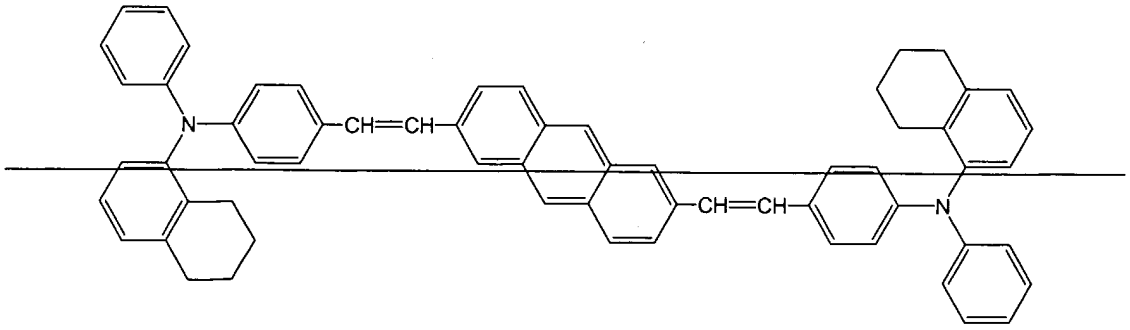
~~Structural formula (32)-8~~



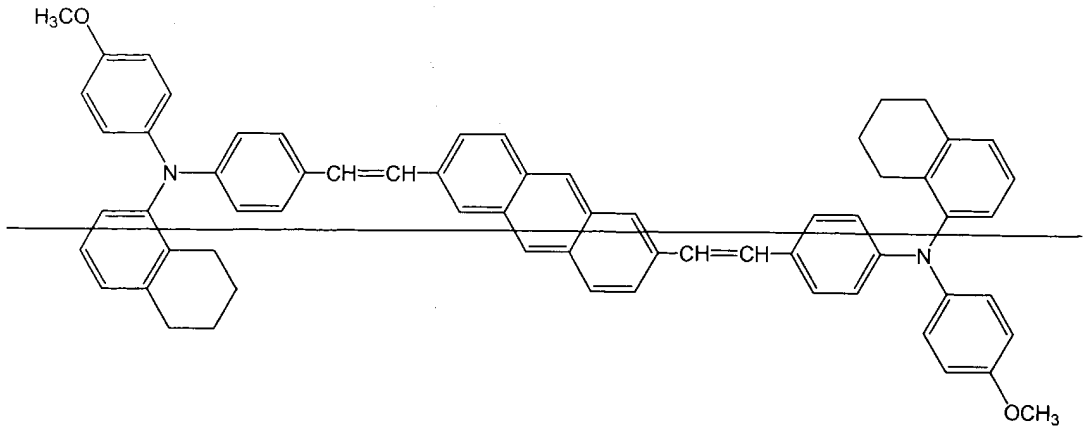
~~Structural formula (32)-9~~



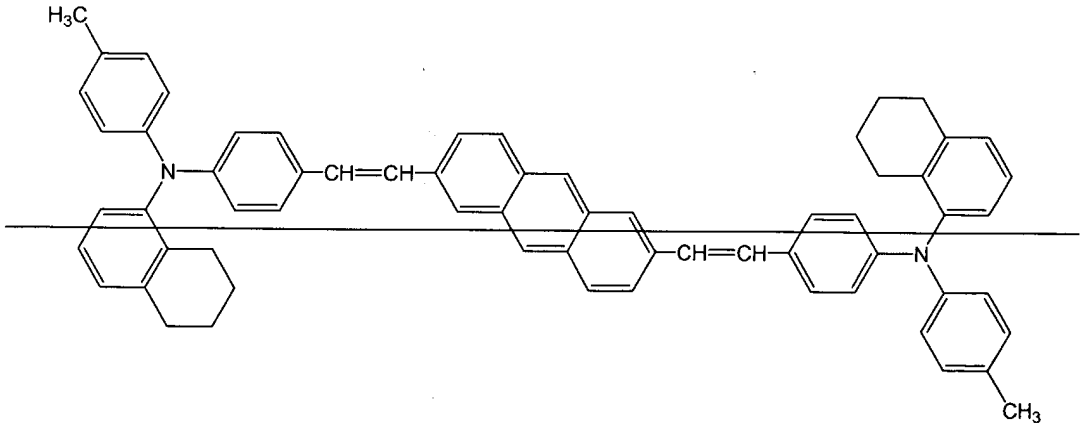
~~Structural formula (32)-10~~



~~Structural formula (35)-10'~~

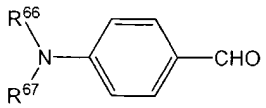


~~Structural formula (32) 10"~~

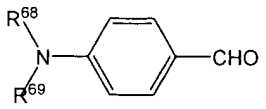


14. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound represented by the general formula [I], [II], [III], or [IV] below, said process comprising condensing at least one species of 4-(N,N-diarylamino)benzaldehyde represented by the general formula [V] or [VI] below and diphosphonic ester represented by the general formula [VII] below or diphosphonium represented by the general formula [VIII] below.

General formula [V]

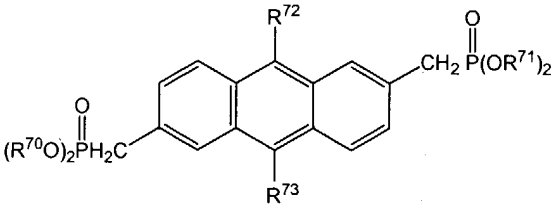


General formula [VI]

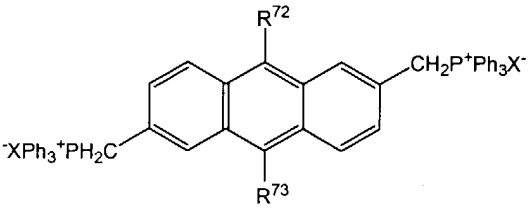


(where R^{66} and R^{67} each denotes an aryl group corresponding to R^1, R^2, R^{12}, R^{13}, R^{23}, R^{24}, R^{34}, or R^{35} given below; and R^{68} and R^{69} each denotes an aryl group corresponding to R^3, R^4, R^{14}, R^{15}, R^{25}, R^{26}, R^{36}, or R^{37} given below.)

General formula [VII]

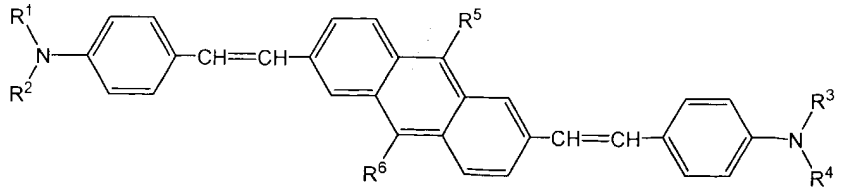


General formula [VIII]



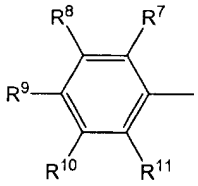
(where R^{70} and R^{71} are identical or different, each denoting a hydrocarbon group; R^{72} and R^{73} each denotes a group corresponding to R^5, R^6, R^{16}, R^{17}, R^{27}, R^{28}, R^{38}, or R^{39} given below; and X denotes a halogen atom.)

General formula [I]



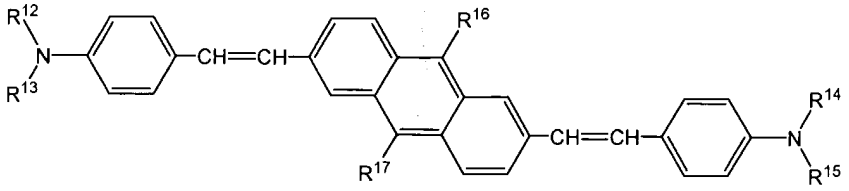
(where R^2 and R^3 each denotes an unsubstituted aryl group, and R^1 and R^4 each denotes an aryl group represented by the general formula (1) below.)

General formula (1)



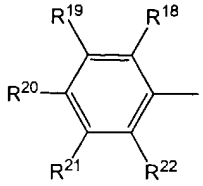
(where R^7, R^8, R^9, R^{10}, and R^{11} are identical or different groups, at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group having one or more carbons; and R^5 and R^6 are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)

General formula [II]



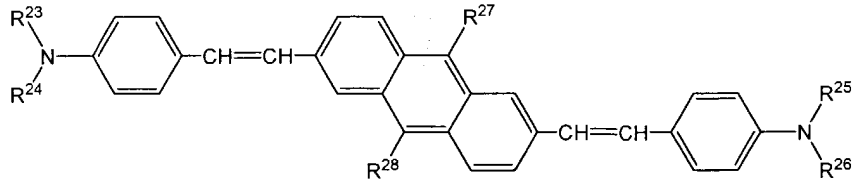
(where R^{12}, R^{13}, R^{14}, and R^{15} are identical or different groups, each denoting an aryl group represented by the general formula (2) below.)

General formula (2)



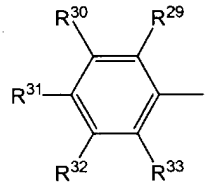
(where R^{18}, R^{19}, R^{20}, R^{21}, and R^{22} are identical or different groups, at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group having one or more carbons; and R^{16} and R^{17} are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)

General formula [III]



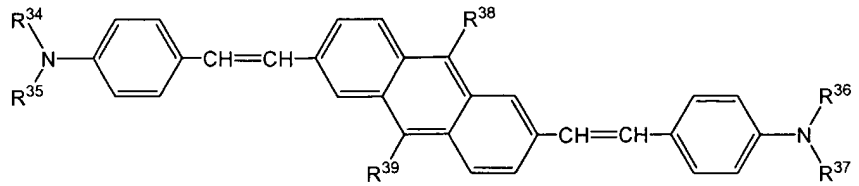
(where at least one of R^{23}, R^{24}, R^{25}, and R^{26} denotes an aryl group represented by the general formula (3) below, with the remainder being an unsubstituted aryl group.)

General formula (3)



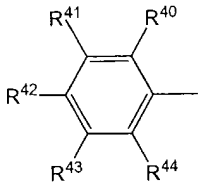
(where R^{29}, R^{30}, R^{31}, R^{32}, and R^{33} are identical or different groups, at least one of them being a saturated or unsaturated hydrocarbon amino group; and R^{27} and R^{28} are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)

General formula [IV]



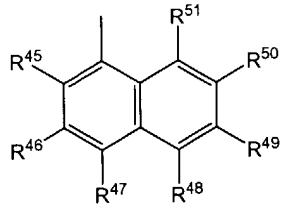
(where R^{35} and R^{36} are identical or different groups, each denoting an aryl group represented by the general formula (4) below.)

General formula (4)



(where R^{40}, R^{41}, R^{42}, R^{43}, and R^{44} are identical or different groups, each denoting hydrogen or at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group having one or more carbons; and R^{34} and R^{37} are identical or different groups, being an aryl group represented by the general formula (5) below.)

General formula (5)



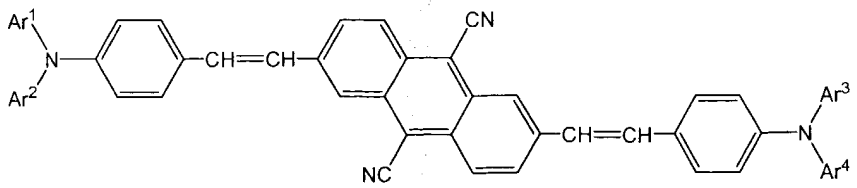
(where R^{45}, R^{46}, R^{47}, R^{48}, R^{49}, R^{50}, and R^{51} are identical or different groups, each denoting a hydrogen atom or at least one of them being a saturated or unsaturated hydrocarbon oxy group or hydrocarbon group, or hydrocarbon amino group having one or more carbons;

and R^{38} and R^{39} are identical or different groups, at least one of them being a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)

15. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound as defined in Claim 14, wherein said condensation is accomplished by Wittig-Horner reaction or Wittig reaction, which involves treating the diphosphonic ester and/or diphosphonium with a base in a solvent, thereby giving a carboanion, and condensing this carboanion with the 4-(N,N-diarylamino)benzaldehyde.

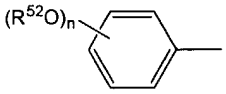
16. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound as defined in Claim 14, wherein said bis(aminostyryl) anthracene is represented by the general formula (6) below.

General formula (6)

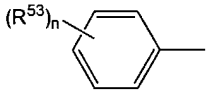


(where Ar^1, Ar^2, Ar^3, and Ar^4 are identical or different, each denoting an aryl group which may have a substituent, and if a substituent is present, said aryl group being one which is selected from aryl groups represented by the general formula (7), (8), (9), (10), (11), (12), (12'), or (12") below.

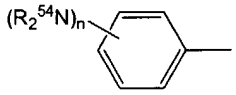
General formula (7)



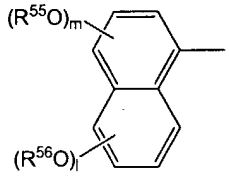
General formula (8)



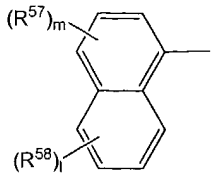
General formula (9)



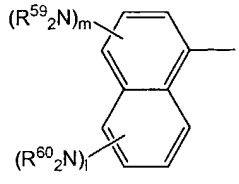
General formula (10)



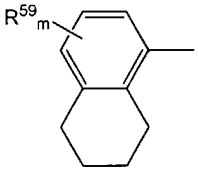
General formula (11)



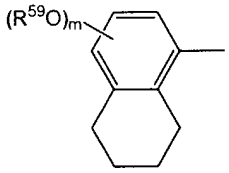
General formula (12)



General formula (12')



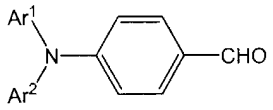
General formula (12")



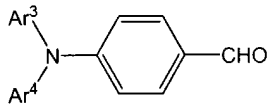
(where R^{52}, R^{53}, and R^{54} each denotes a saturated or unsaturated hydrocarbon group having one or more carbons; R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} are identical or different, each denoting a saturated or unsaturated hydrocarbon group having one or more carbons; n is an integer of 0 to 6; m is an integer of 0 to 3; and l is an integer of 0 to 4.)

said process comprising condensing at least one species of 4-(N,N-diarylamino)benzaldehyde represented by the general formula (33) or (34) below with diphosphonic ester represented by the general formula (35) below or diphosphonium represented by the general formula (36) below.

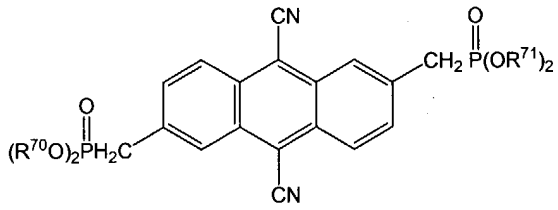
General formula (33)



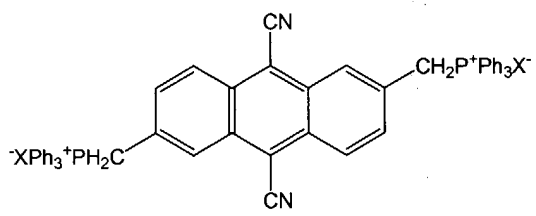
General formula (34)



General formula (35)



General formula (36)



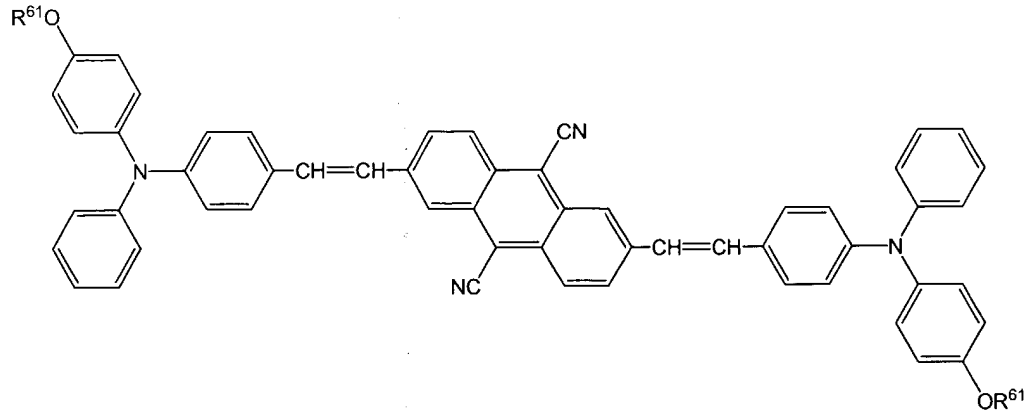
(where Ar^1, Ar^2, Ar^3, Ar^4, R^{70}, R^{71} and X are defined as above.)

17. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound as defined in Claim 16, wherein R^{70} and R^{71} each denotes a saturated hydrocarbon group having 1 to 4 carbon atoms.

18. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound as defined in Claim 16, wherein R^{52}, R^{53}, R^{54}, R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} each has 0 to 6 carbon atoms.

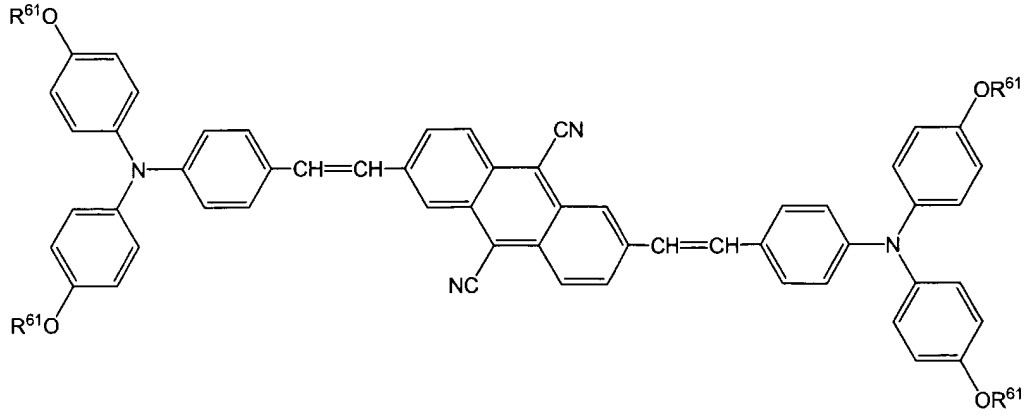
19. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound as defined in Claim 14 or 16, wherein said process yields a bis(aminostyryl)anthracene compound represented by the general formula (13), (14), (15), (16), (17), (17'), or (17") below.

General formula (13)



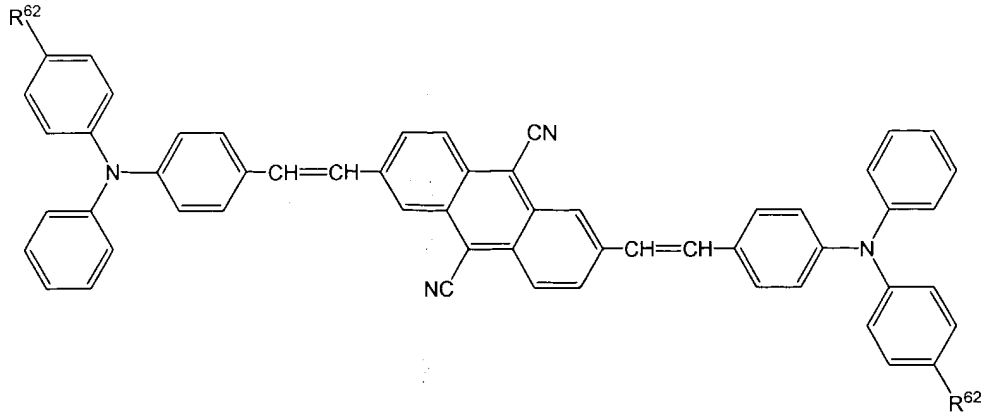
(where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (13')



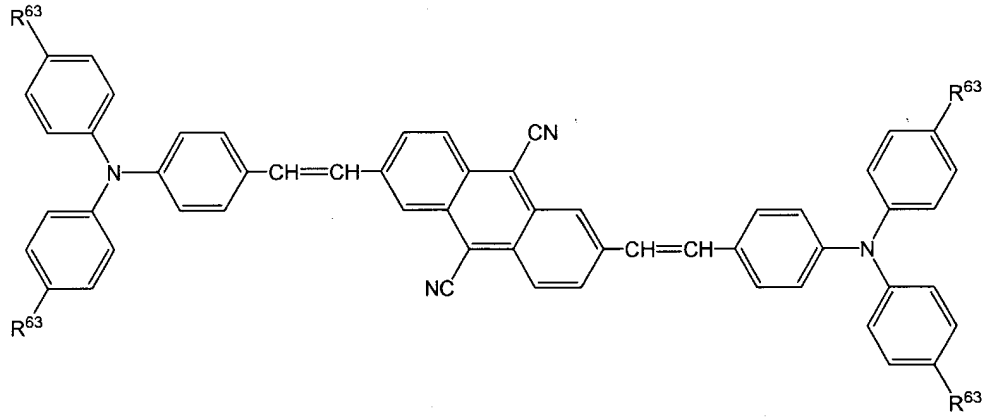
(where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (14)



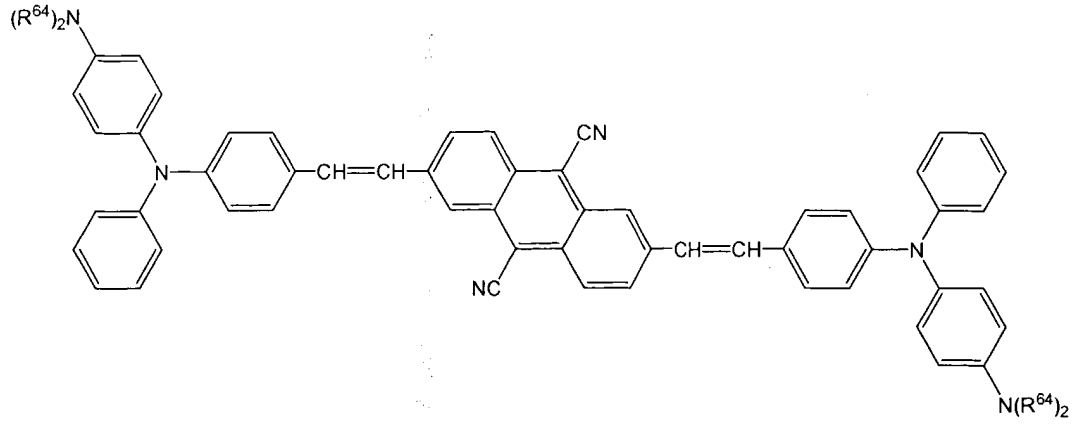
(where R^{62} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (15)



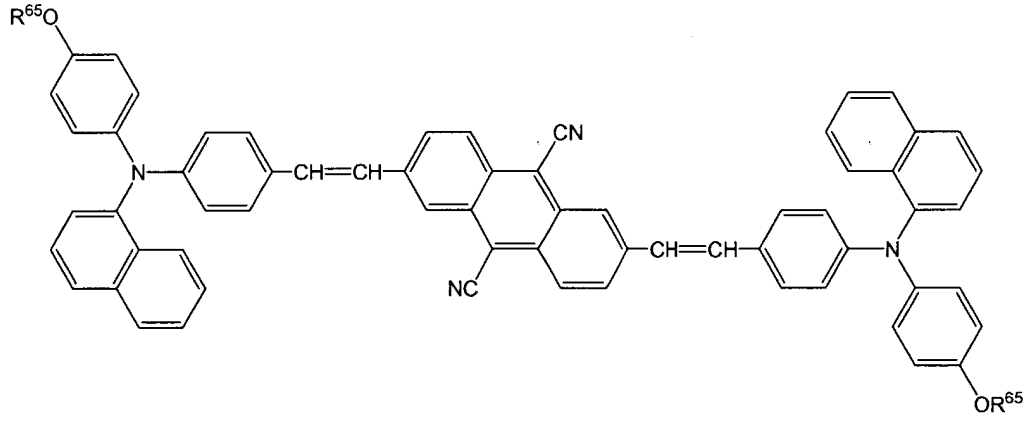
(where R^{63} denotes a saturated or unsaturated hydrocarbon group or hydrocarbon oxy group having 1 to 6 carbon atoms.)

General formula (16)



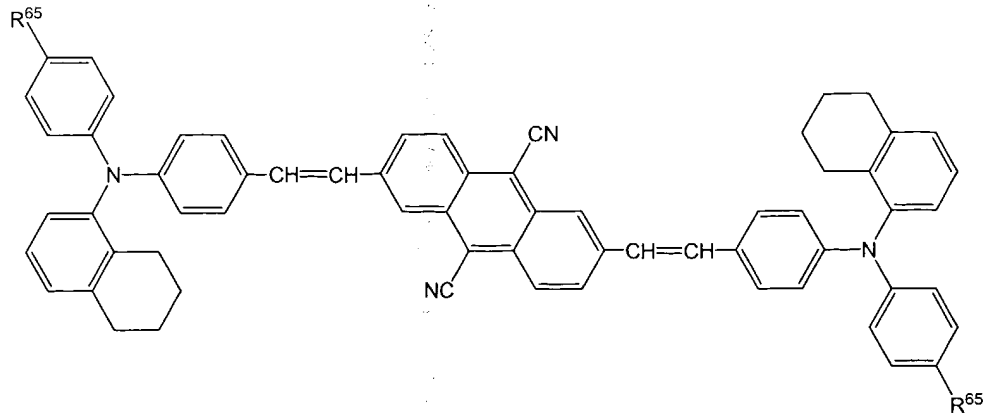
(where R^{64} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (17)



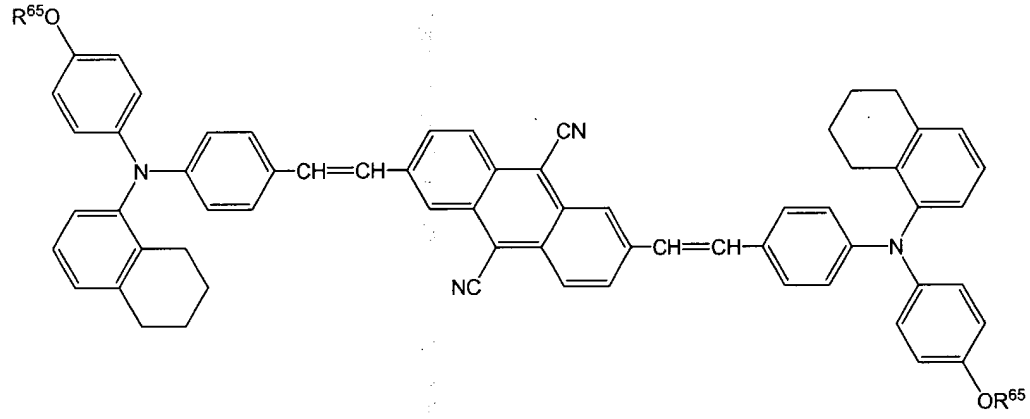
(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (17')



(where R^{65} denotes a hydrogen atom or a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

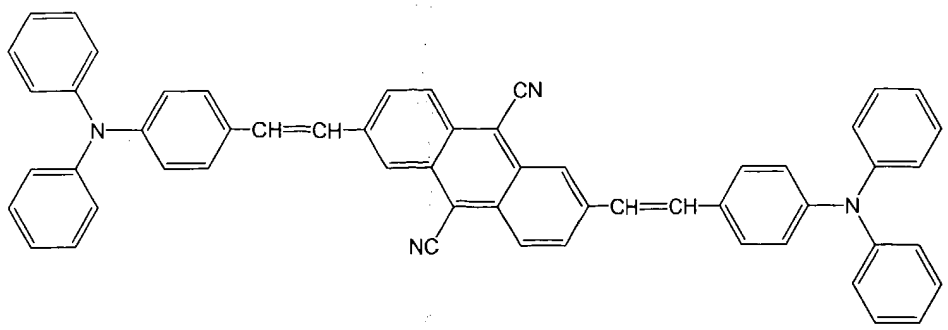
General formula (17")



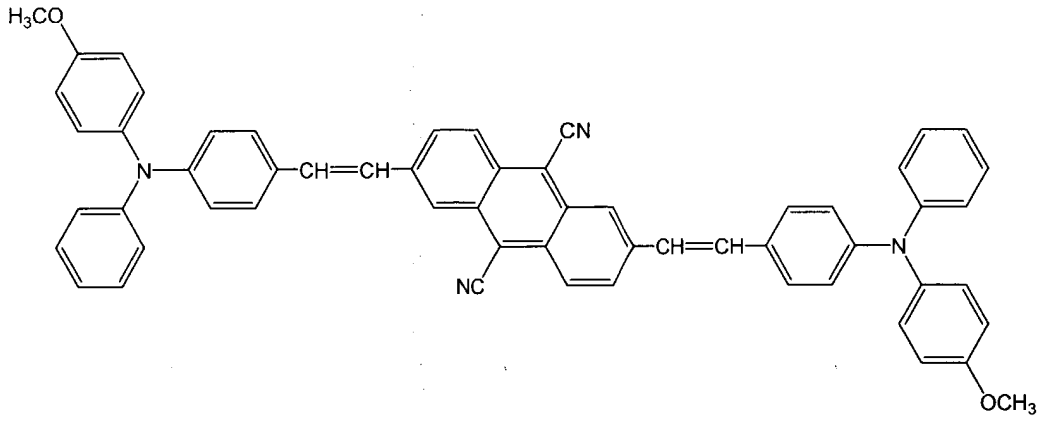
(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

20. (Cancelled) A process for producing a bis(aminostyryl) anthracene compound as defined in Claim 14 or 16, wherein said process yields a bis(aminostyryl)anthracene compound represented by the structural formula (18)-1, (18)-2, (18)-2', (18)-3, (18)-4, (18)-5, (18)-6, (18)-6', (18)-7, (18)-8, (18)-9, (18)-10, (18)-10', (18)-10", or (18)-11 below.

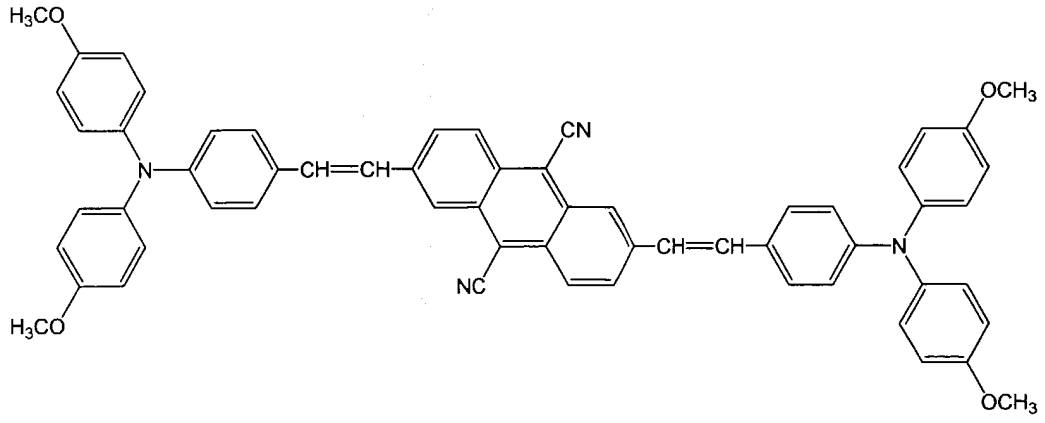
Structural formula (18)-1



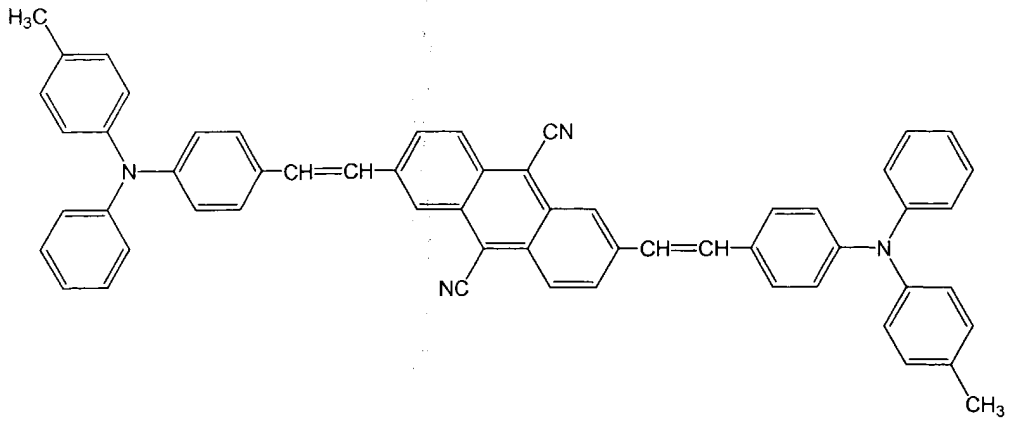
Structural formula (18)-2



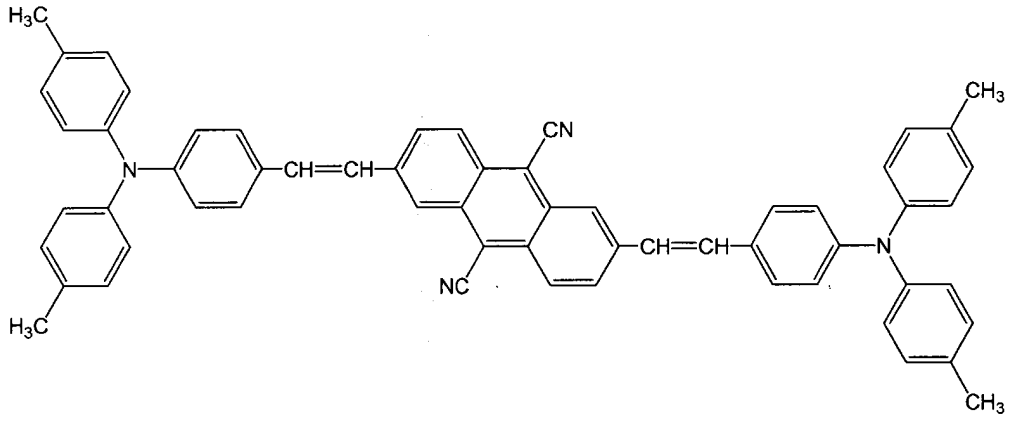
Structural formula (18)-2'



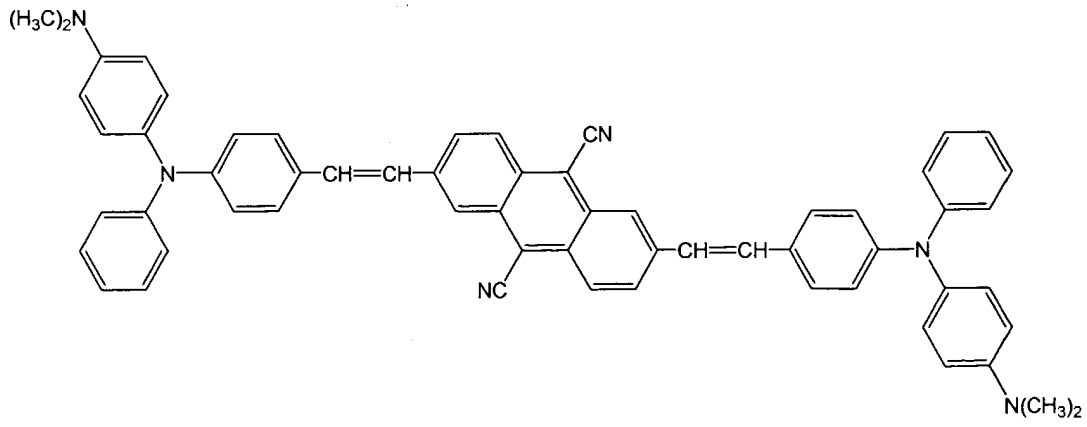
Structural formula (18)-3



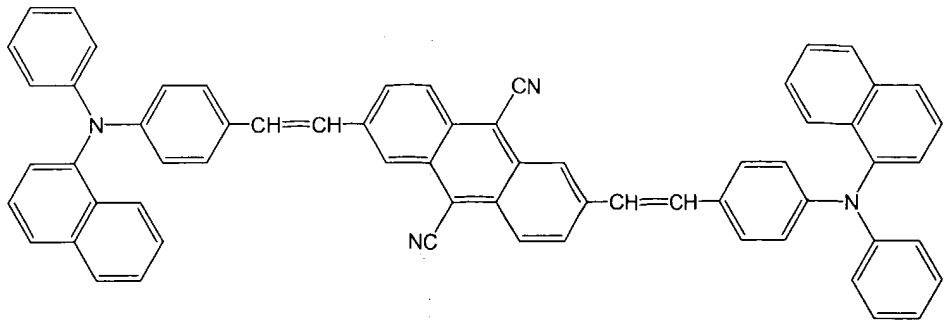
Structural formula (18)-4



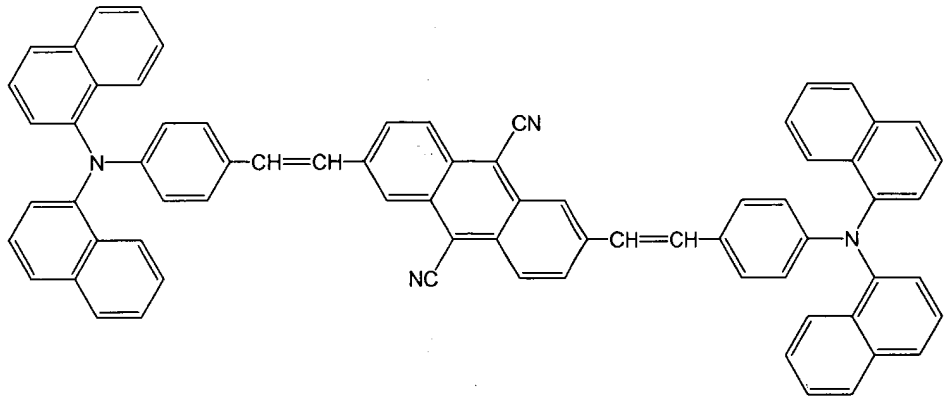
Structural formula (18)-5



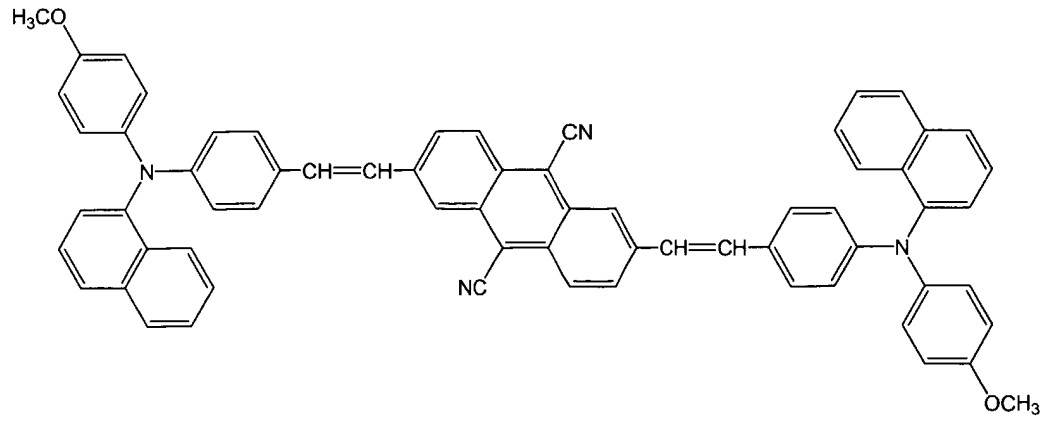
Structural formula (18)-6



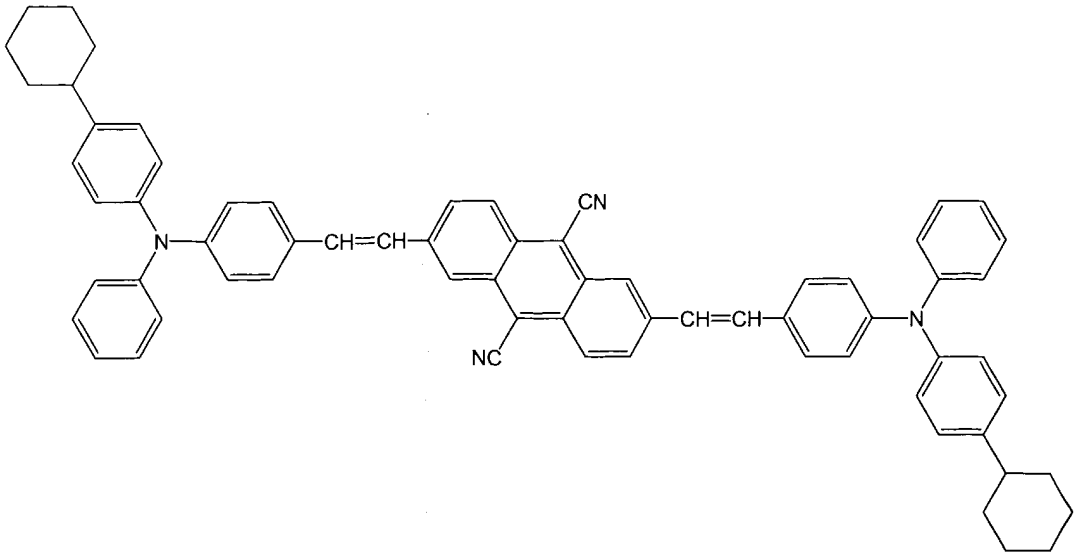
Structural formula (18)-6'



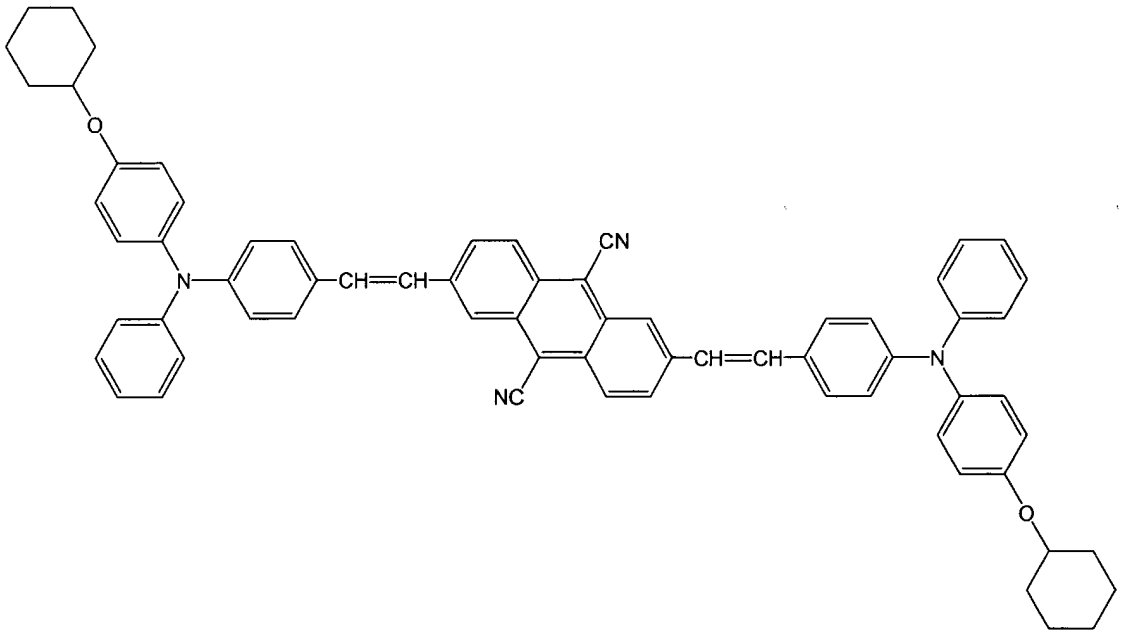
Structural formula (18)-7



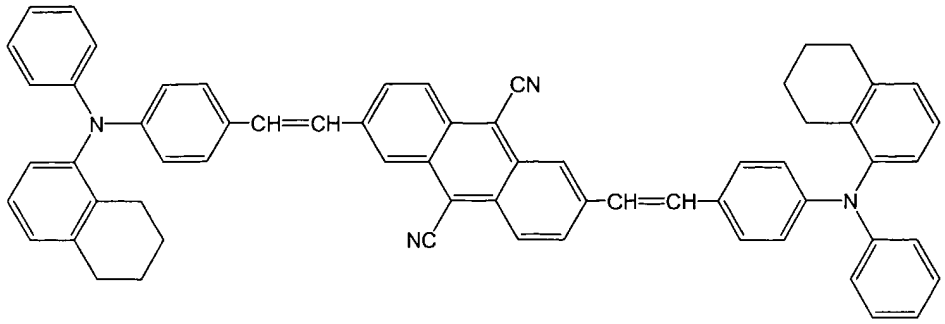
Structural formula (18)-8



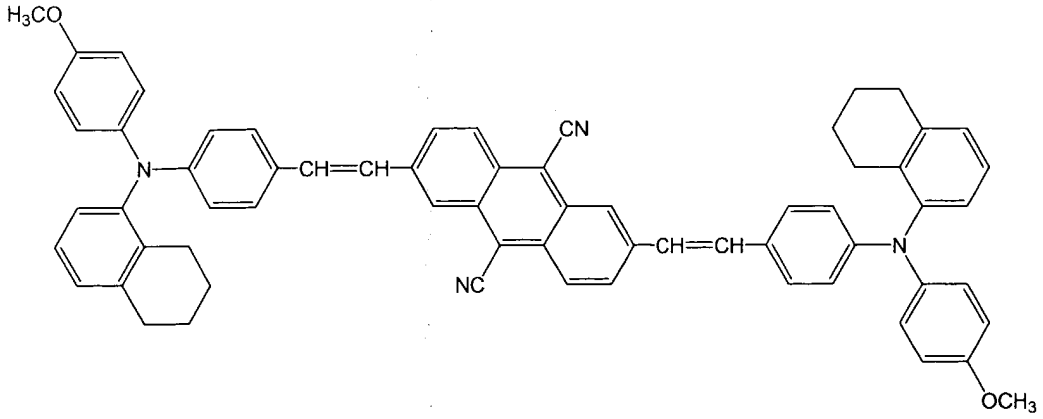
Structural formula (18)-9



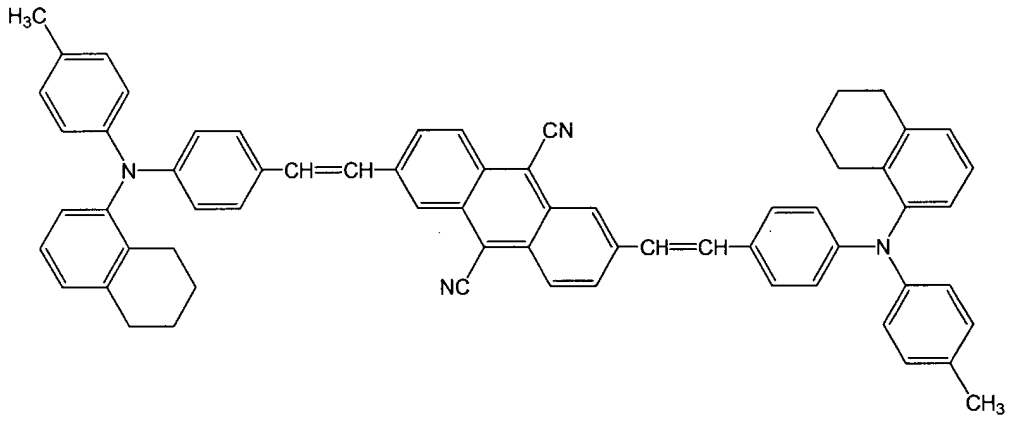
Structural formula (18)-10



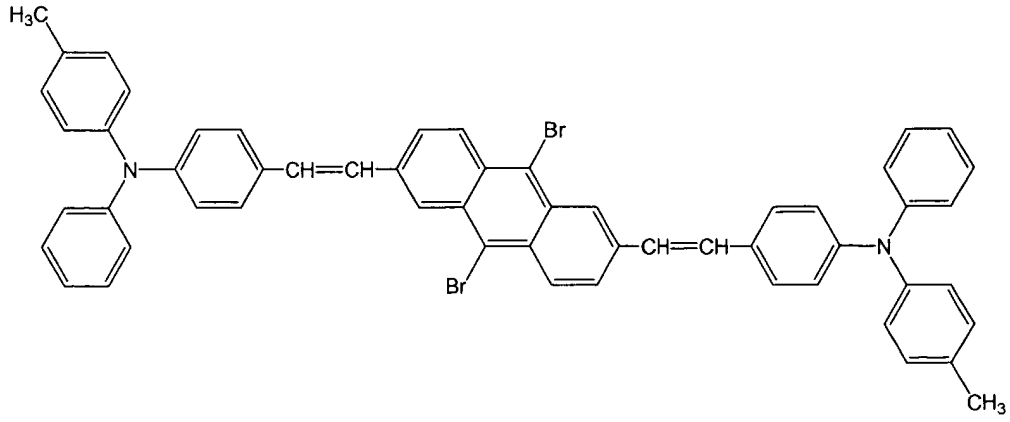
Structural formula (18)-10'



Structural formula (18)-10"

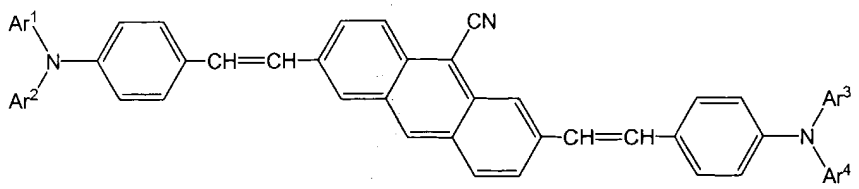


Structural formula (18)-11



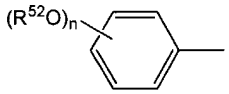
21. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 14, wherein said bis(aminostyryl)anthracene is represented by the general formula (19) below.

General formula (19)

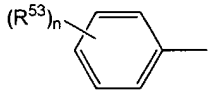


(where Ar^1, Ar^2, Ar^3, and Ar^4 are identical or different, each denoting an aryl group which may have a substituent, and if a substituent is present, said aryl group being one which is selected from aryl groups represented by the general formula (7), (8), (9), (10), (11), (12), (12'), or (12") below.

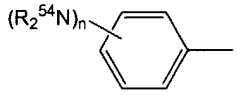
General formula (7)



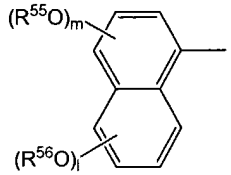
General formula (8)



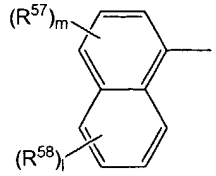
General formula (9)



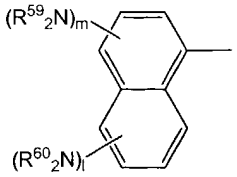
General formula (10)



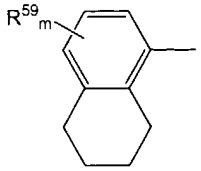
General formula (11)



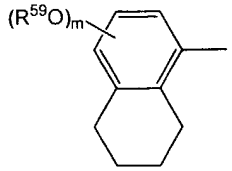
General formula (12)



General formula (12')



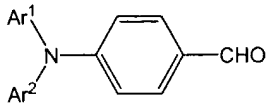
General formula (12")



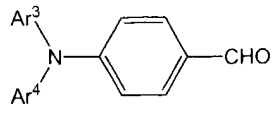
(where R^{52}, R^{53}, and R^{54} each denotes a saturated or unsaturated hydrocarbon group having one or more carbons; R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} are identical or different, each denoting a saturated or unsaturated hydrocarbon group having one or more carbons; n is an integer of 0 to 6; m is an integer of 0 to 3; and l is an integer of 0 to 4.)

said process comprising condensing at least one species of 4-(N,N-diarylamino)benzaldehyde represented by the general formula (33) or (34) below with diphosphonic ester represented by the general formula (37) below or diphosphonium represented by the general formula (38) below.

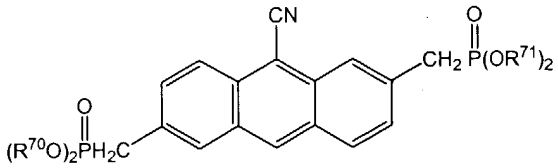
General formula (33)



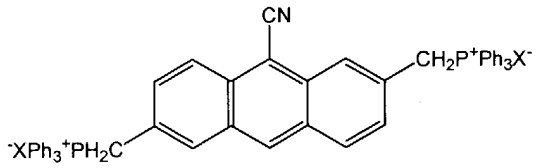
General formula (34)



General formula (37)



General formula (38)



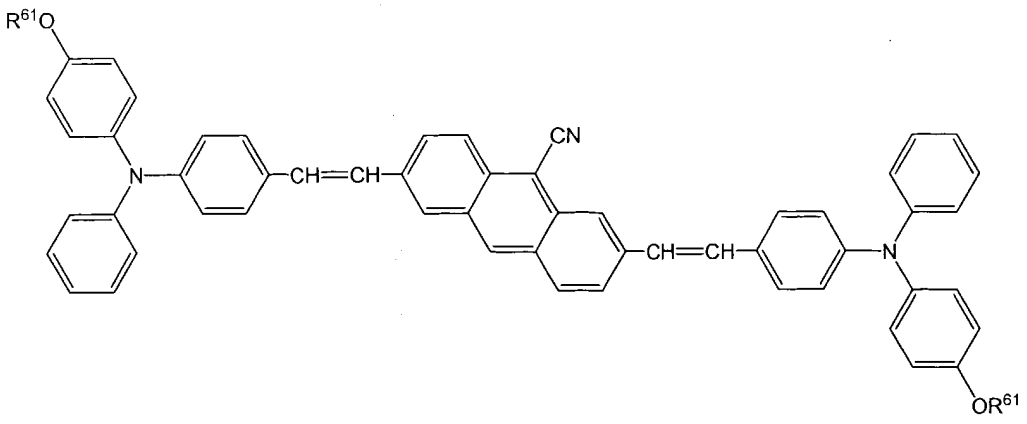
(where Ar^1, Ar^2, Ar^3, Ar^4, R^{70}, R^{71} and X are defined as above.)

22. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 21, wherein R^{70} and R^{71} each denotes a saturated hydrocarbon group having 1 to 4 carbon atoms.

23. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 21, wherein R^{52}, R^{53}, R^{54}, R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} each has 0 to 6 carbon atoms.

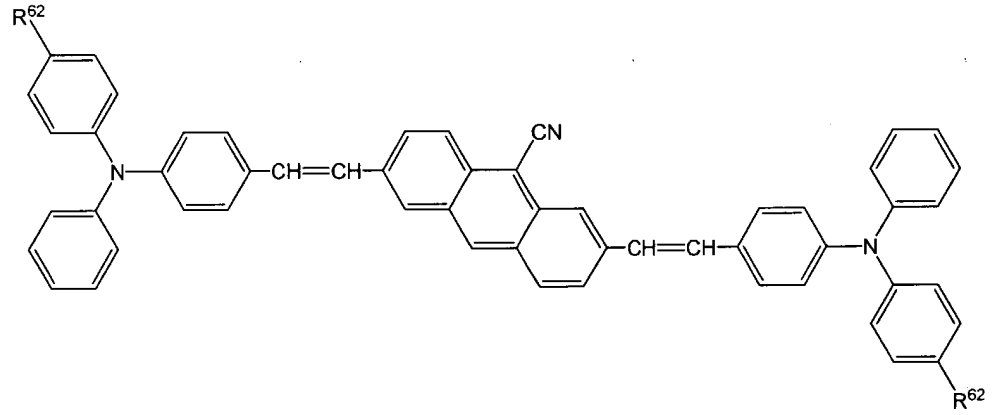
24. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 14 or 21, said process yielding a bis(aminostyryl)anthracene compound represented by ~~the general~~ formula<u>e</u> (20), (21), (22), (23), (24), (24') or (24") ~~below.~~

~~General~~ formula (20)



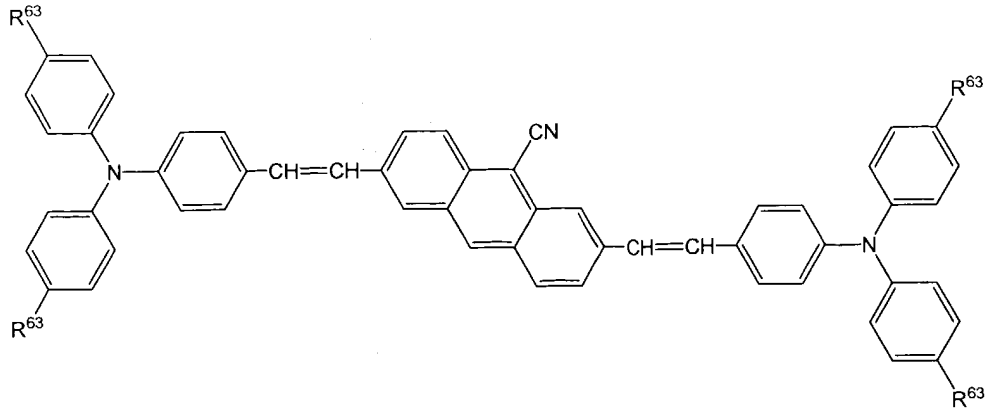
(where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

~~General~~ formula (21)



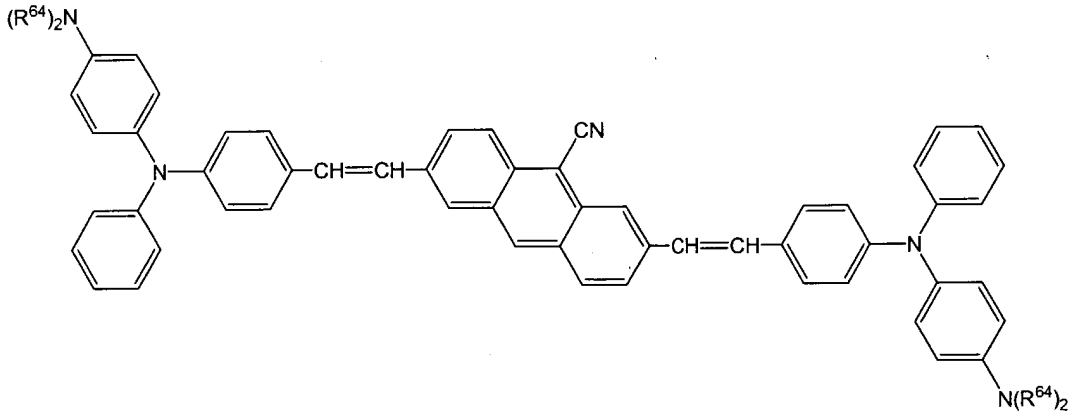
(where R^{62} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

~~General~~ formula (22)



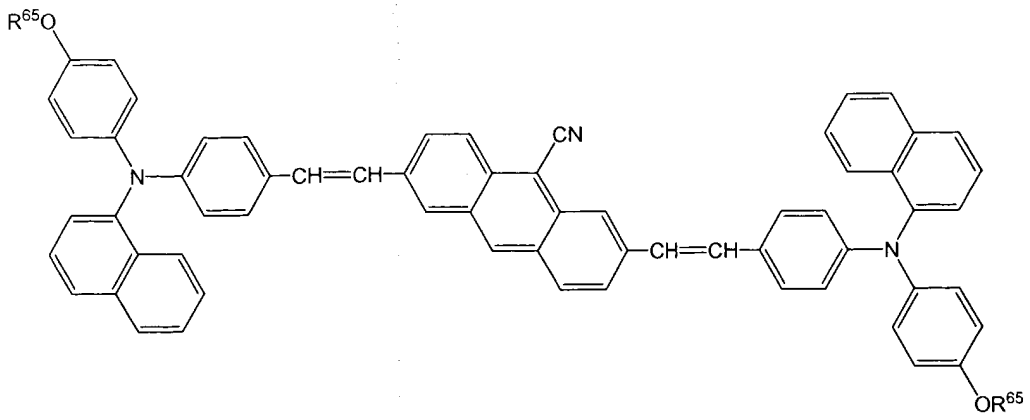
(where R^{63} denotes a saturated or unsaturated hydrocarbon group or hydrocarbon oxy group having 1 to 6 carbon atoms.)

~~General~~ formula (23)



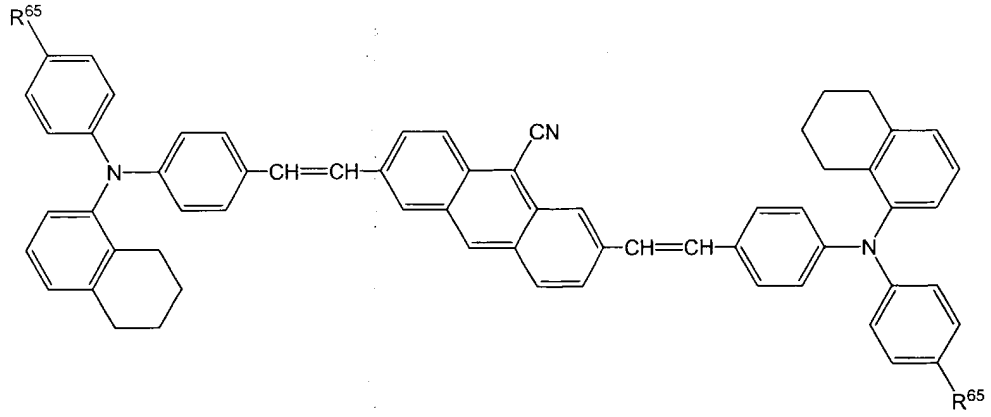
(where R^{64} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

~~General~~ formula (24)



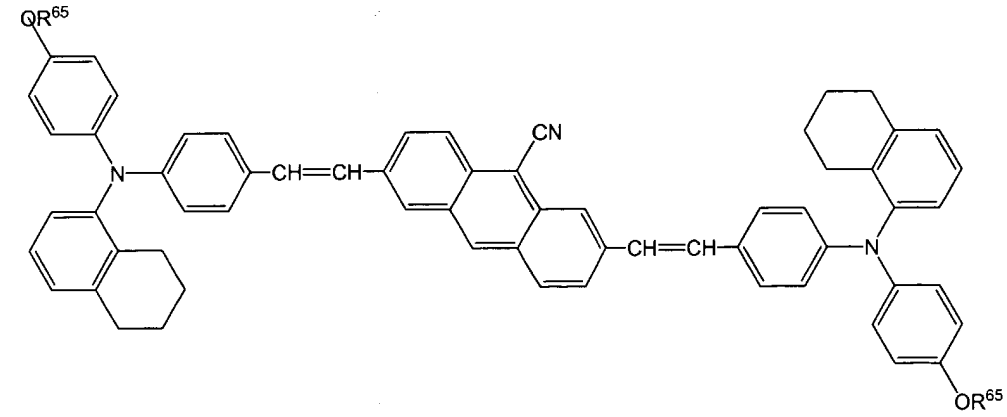
(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

~~General~~ formula (24')



(~~where~~ R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.~~)~~

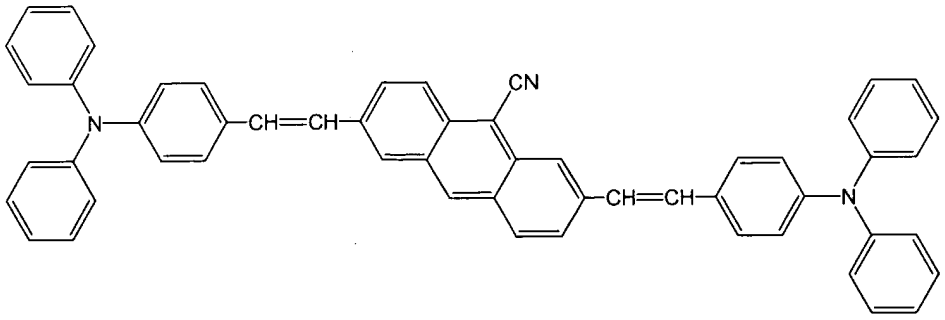
~~General~~ formula (24")



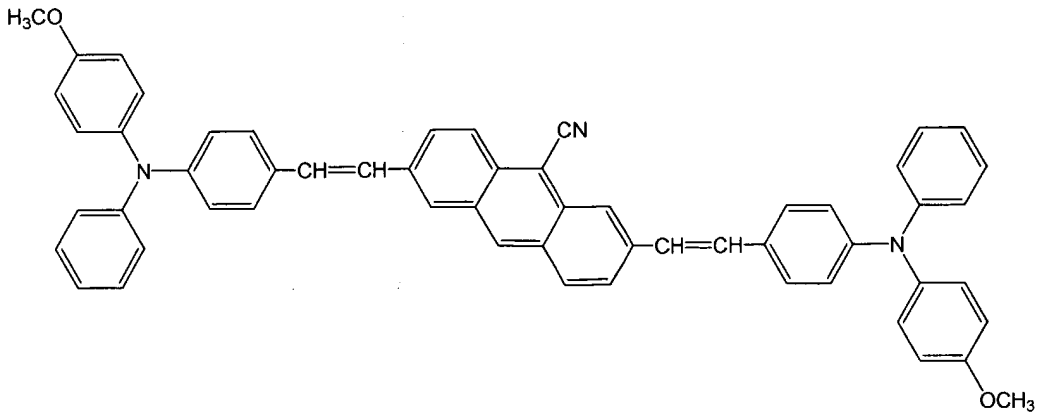
(~~where~~ R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.~~)~~

25. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 14 or 21, said process yielding a bis(aminostyryl)anthracene compound represented by ~~the structural~~ formulae (25)-1, (25)-2, (25)-2', (25)-3, (25)-4, (25)-5, (25)-6, (25)-6', (25)-7, (25)-8, (25)-9, (25)-10, (25)-10', (25)-10", or (25)-11 ~~below.~~

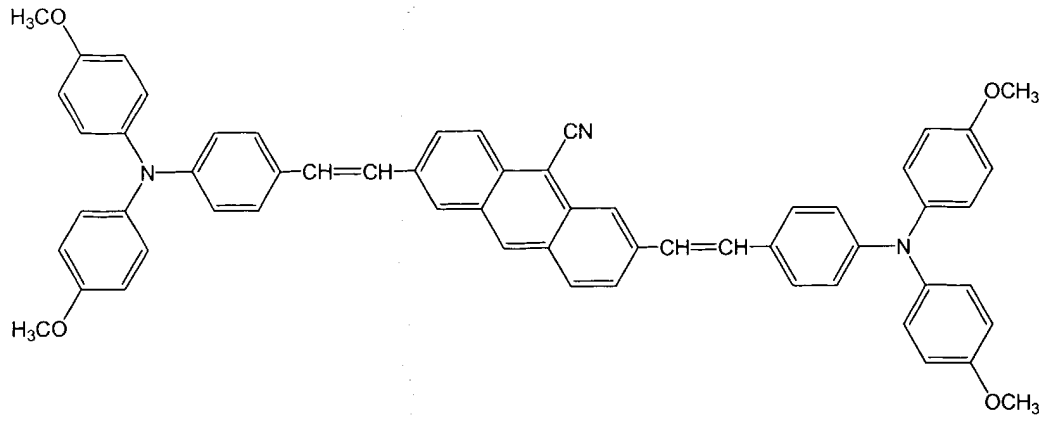
Structural formula (25)-1



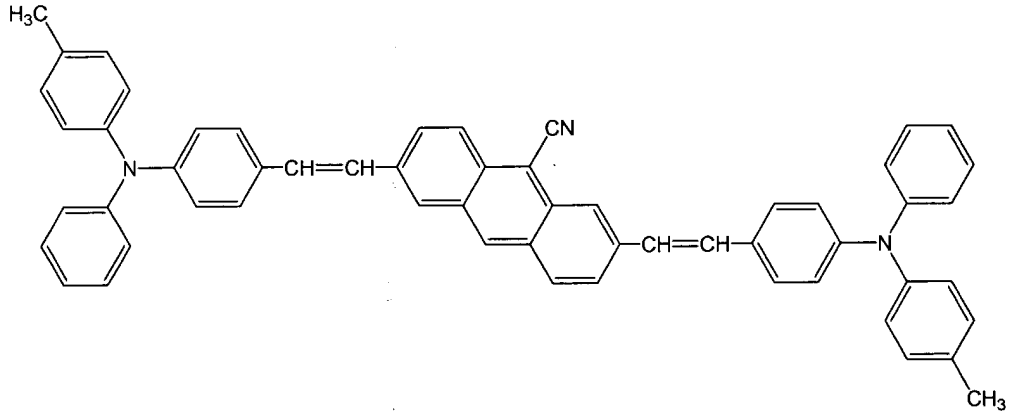
~~Structural~~ formula (25)-2



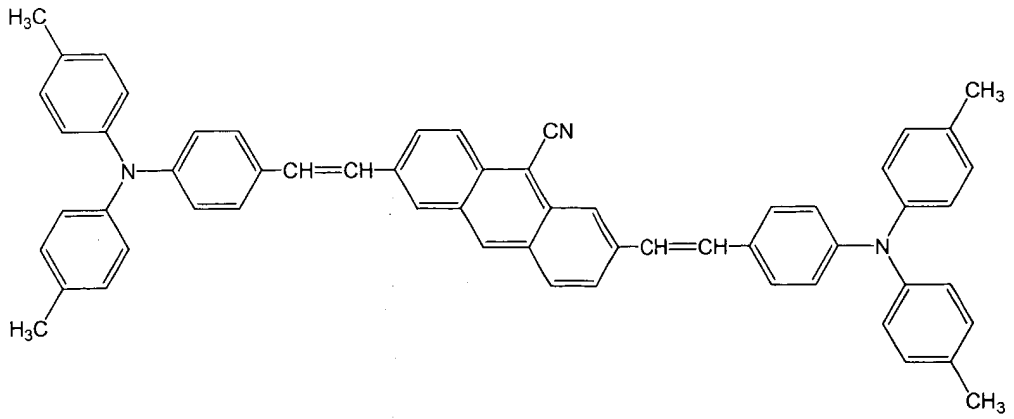
~~Structural~~ formula (25)-2'



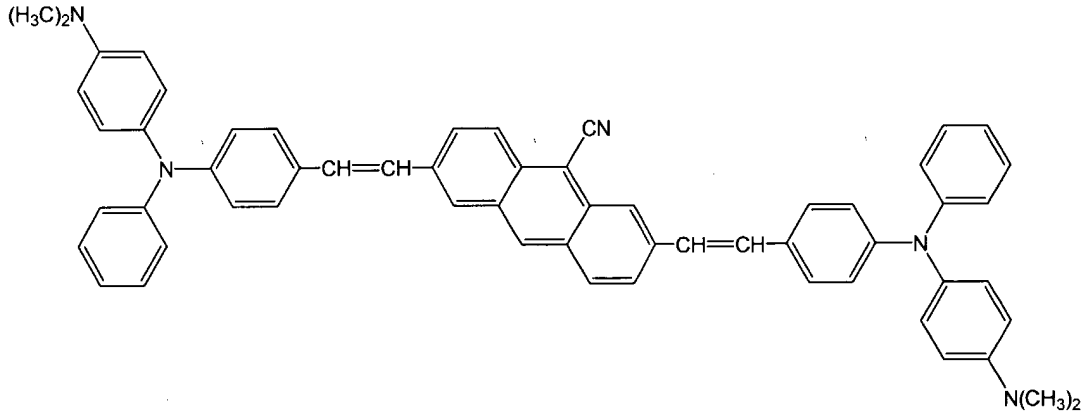
~~Structural~~ formula (25)-3



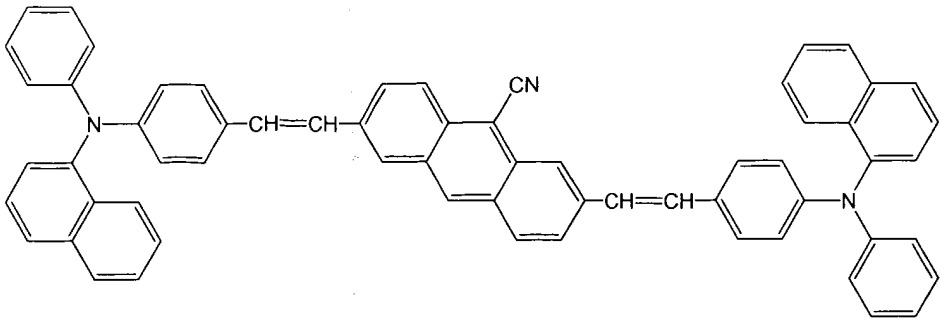
~~Structural~~ formula (25)-4



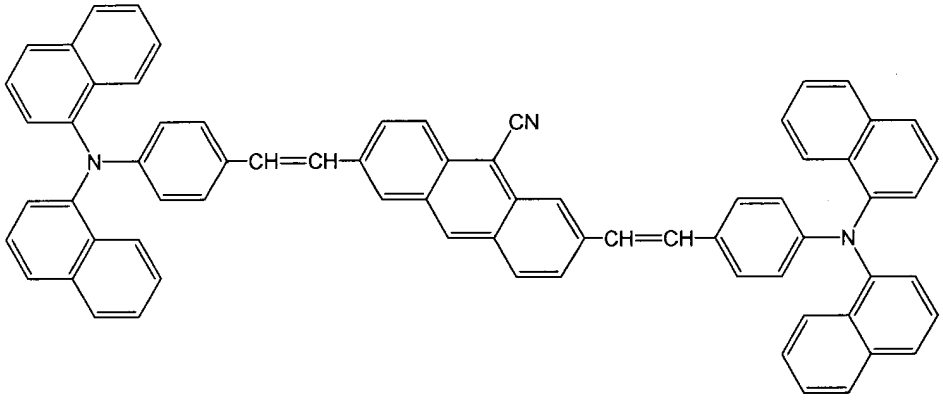
~~Structural~~ formula (25)-5



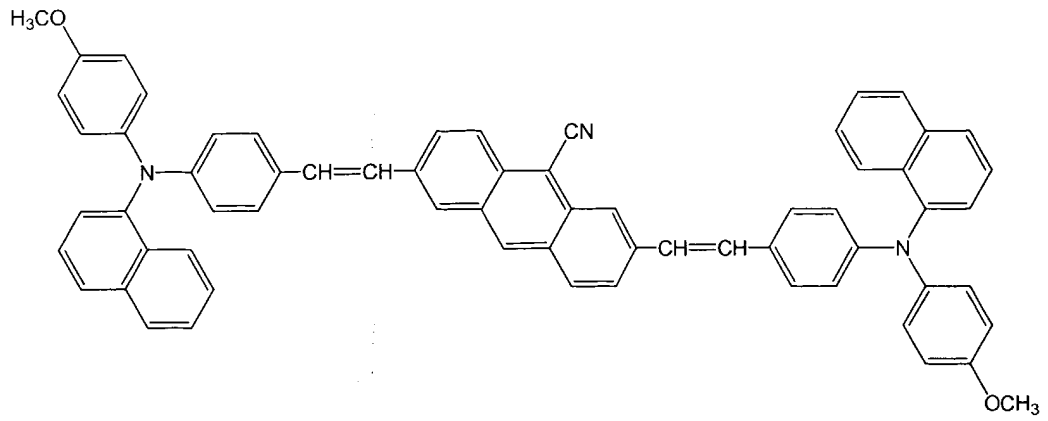
~~Structural~~ formula (25)-6



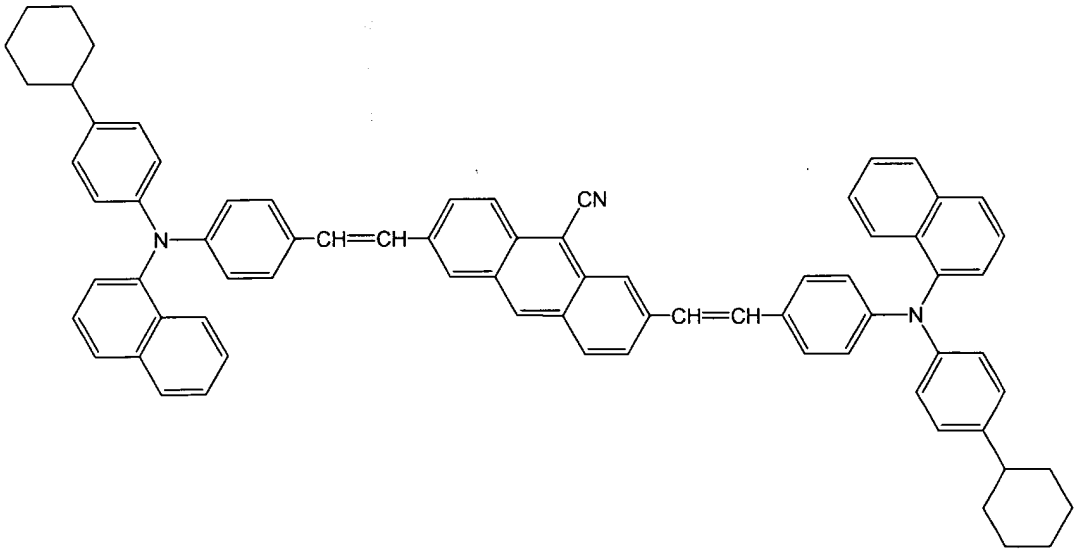
~~Structural~~ formula (25)-6'



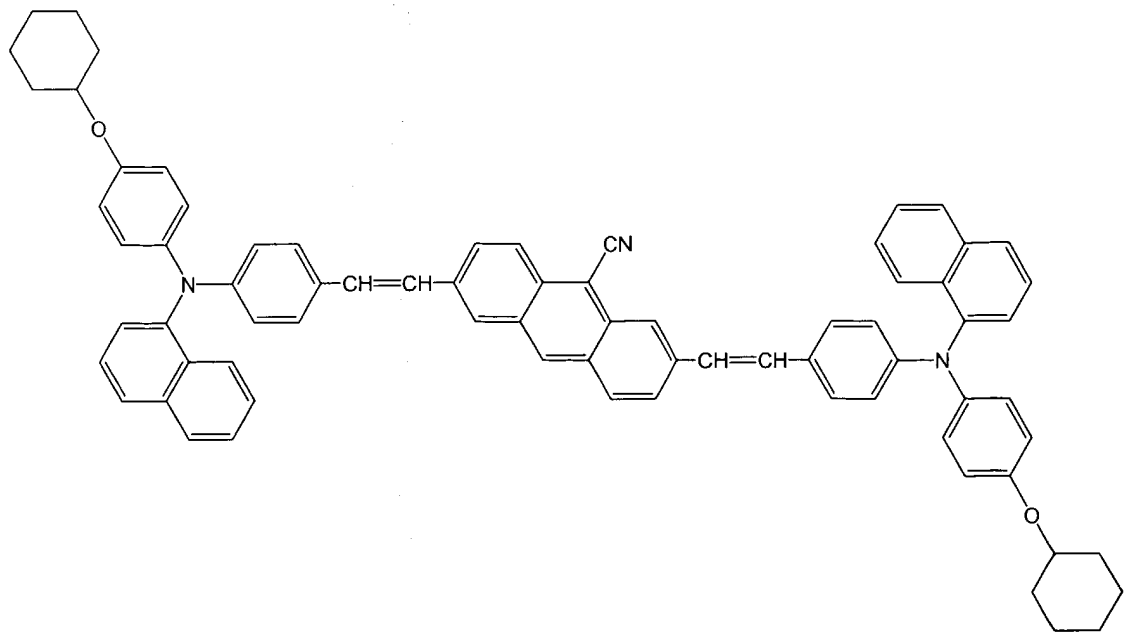
~~Structural~~ formula (25)-7



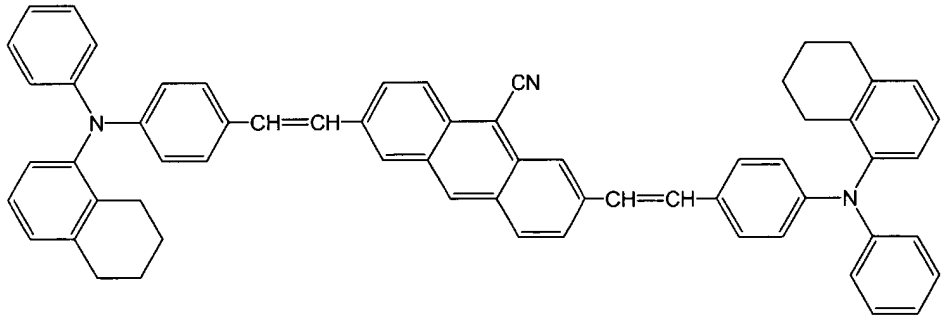
~~Structural~~ formula (25)-8



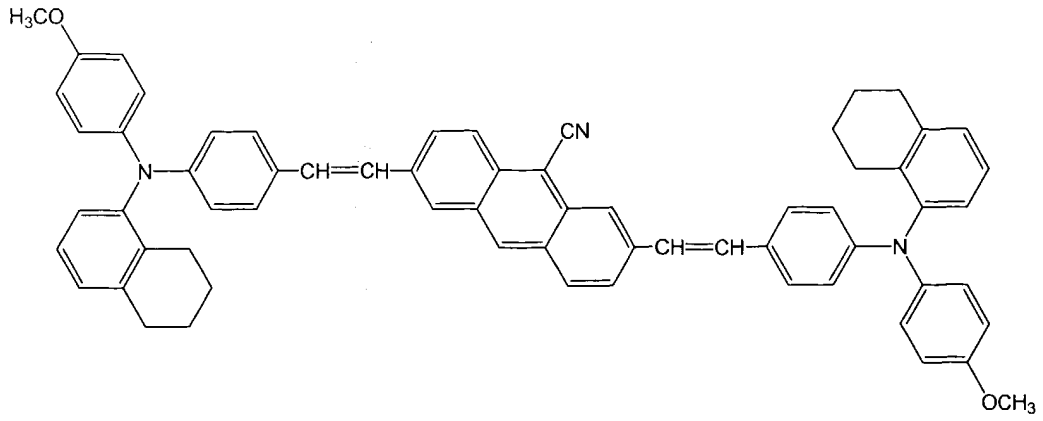
~~Structural~~ formula (25)-9



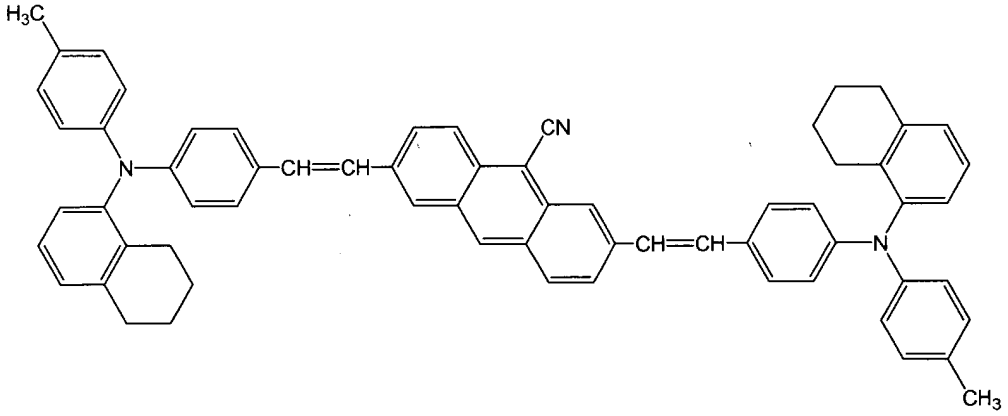
~~Structural~~ formula (25)-10



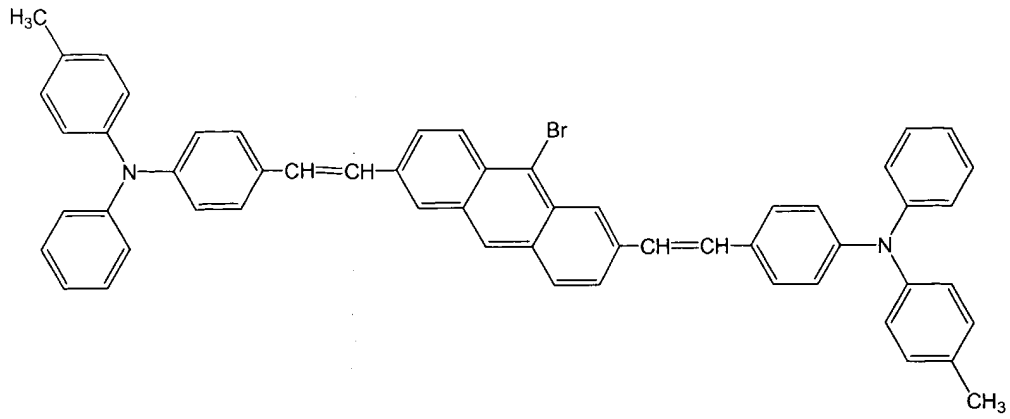
~~Structural~~ formula (25)-10'



~~Structural~~ formula (25)-10"

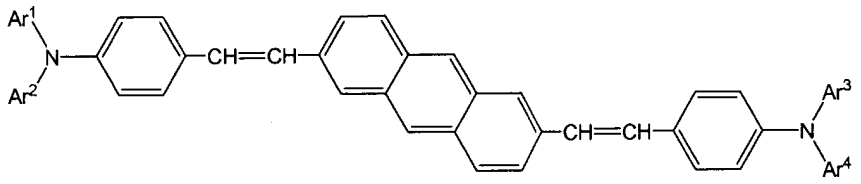


~~Structural~~ formula (25)-11



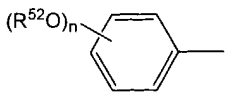
26. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 14, wherein said bis(aminostyryl)anthracene is represented by the general formula (26) below.

General formula (26)

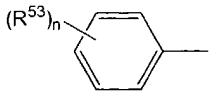


(where Ar^1, Ar^2, Ar^3, and Ar^4 are identical or different, each denoting an aryl group which may have a substituent, and if a substituent is present, said aryl group being one which is selected from aryl groups represented by the general formula (7), (8), (9), (10), (11), (12), (12'), or (12") below.

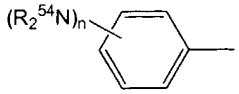
General formula (7)



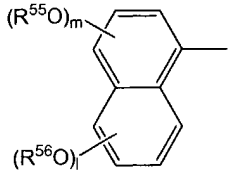
General formula (8)



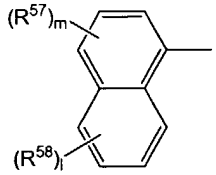
General formula (9)



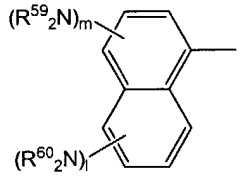
General formula (10)



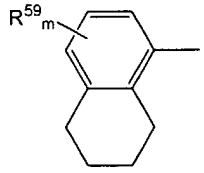
General formula (11)



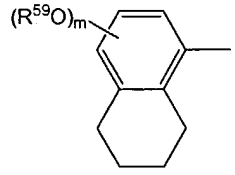
General formula (12)



General formula (12')



General formula (12")

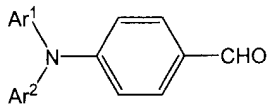


(where R^{52}, R^{53}, and R^{54} each denotes a saturated or unsaturated hydrocarbon group having one or more carbons; R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} are identical or different, each denoting a saturated or unsaturated hydrocarbon group having one or

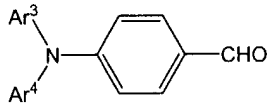
more carbons; n is an integer of 0 to 6; m is an integer of 0 to 3; and l is an integer of 0 to 4.)

said process comprising condensing at least one species of 4-(N,N-diarylamino)benzaldehyde represented by the general formula (33) or (34) below with diphosphonic ester represented by the general formula (39) below or diphosphonium represented by the general formula (40) below.

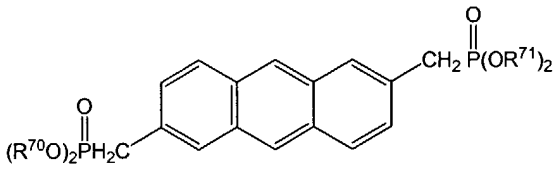
General formula (33)



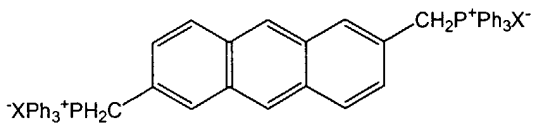
General formula (34)



General formula (39)



General formula (40)



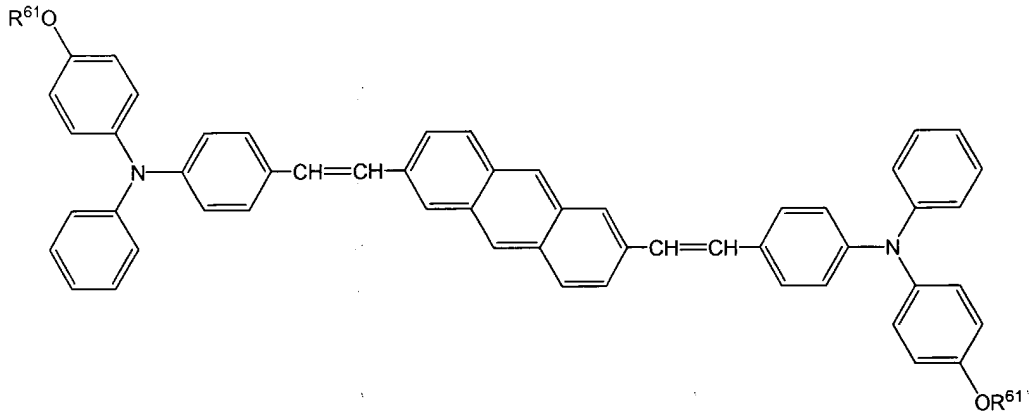
(where Ar^1, Ar^2, Ar^3, Ar^4, R^{70}, R^{71} and X are defined as above.)

27. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 26, wherein R^{70} and R^{71} each denotes a saturated hydrocarbon group having 1 to 4 carbon atoms.

28. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 26, wherein R^{52}, R^{53}, R^{54}, R^{55}, R^{56}, R^{57}, R^{58}, R^{59}, and R^{60} each has 1 to 6 carbon atoms.

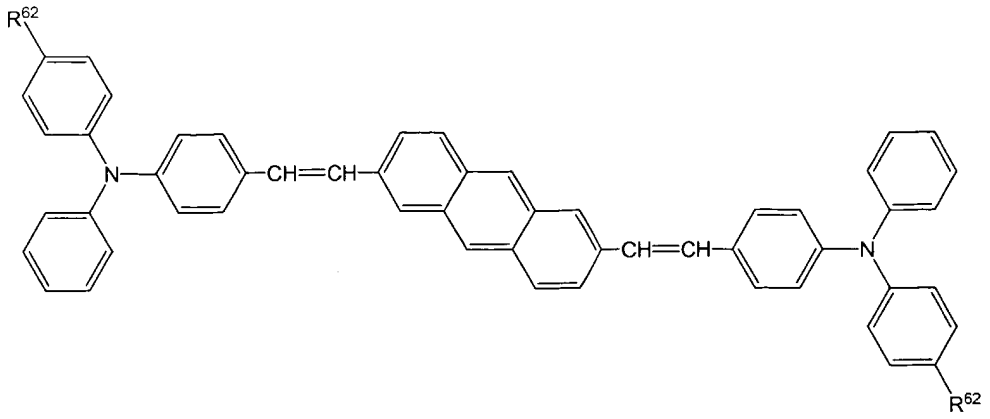
29. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 14 or 26, said process yielding a bis(aminostyryl)anthracene compound represented by the general formula (27), (28), (29), (30), (31), (31') or (31") below.

General formula (27)



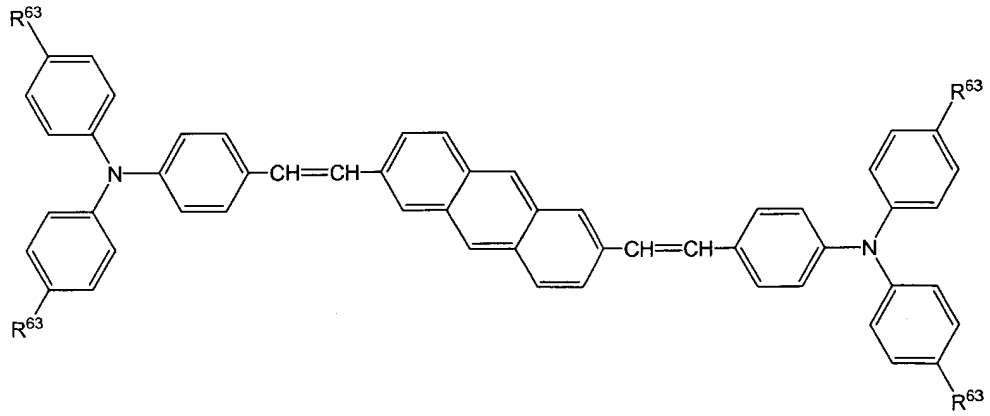
(where R^{61} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (28)



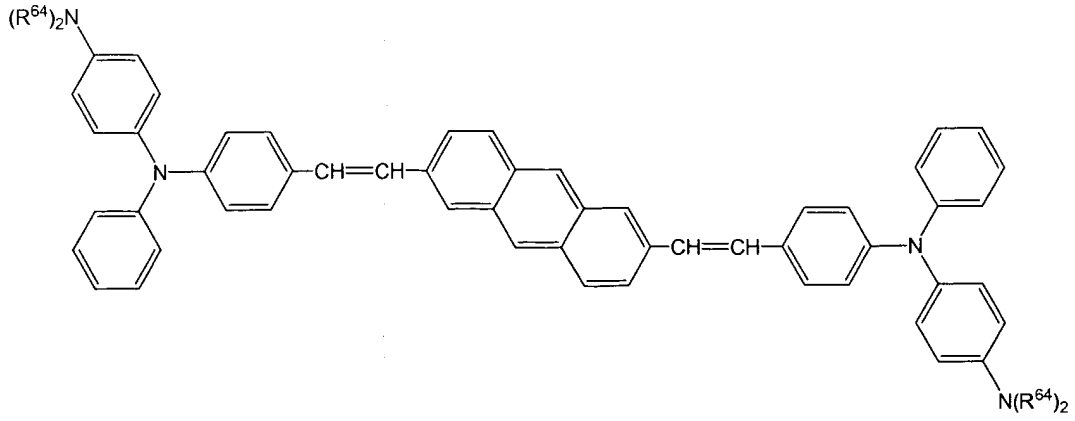
(where R^{62} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (29)



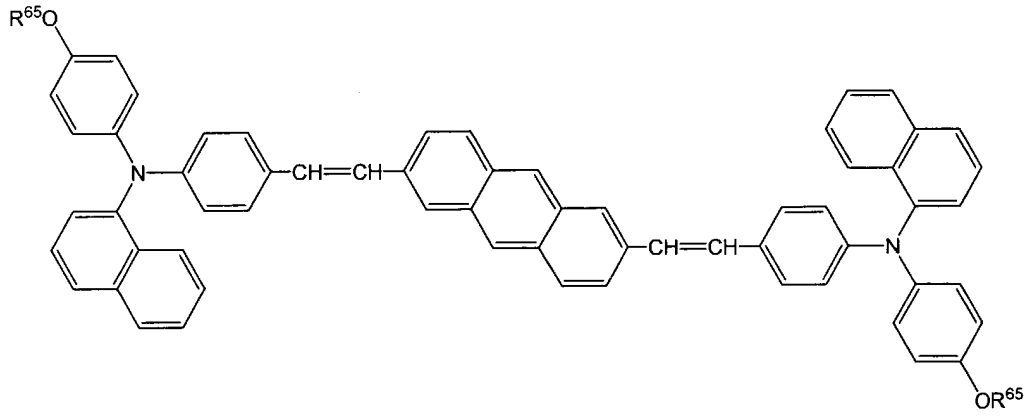
(where R^{63} denotes a saturated or unsaturated hydrocarbon group or hydrocarbon oxy group having 1 to 6 carbon atoms.)

General formula (30)



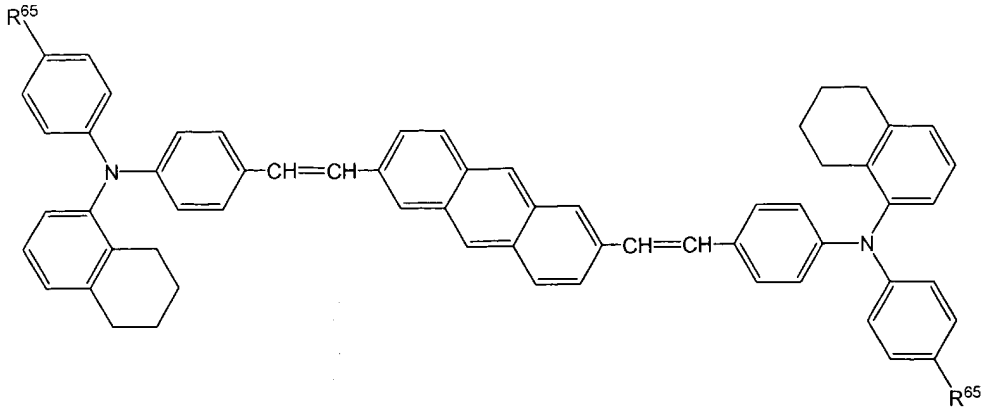
(where R^{64} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

General formula (31)



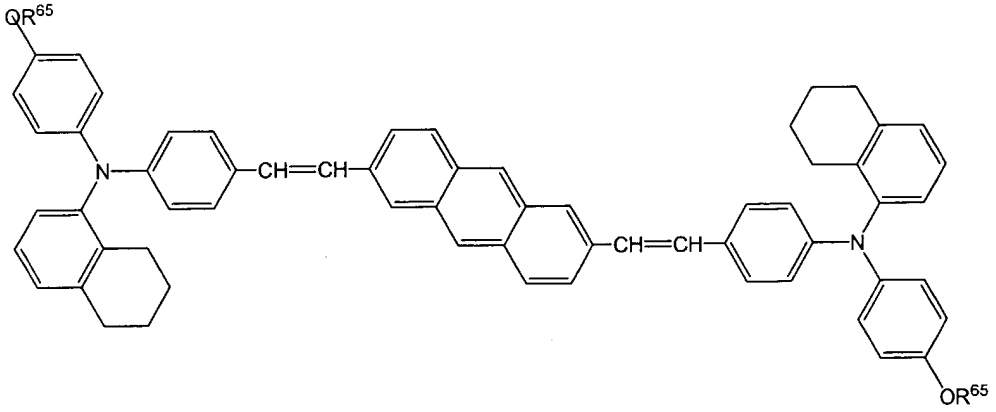
group having 1 to 6 carbon atoms.)

General formula (31')



(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

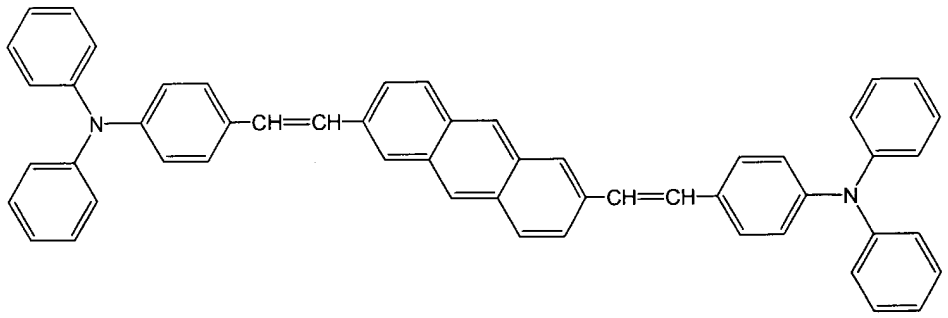
General formula (31")



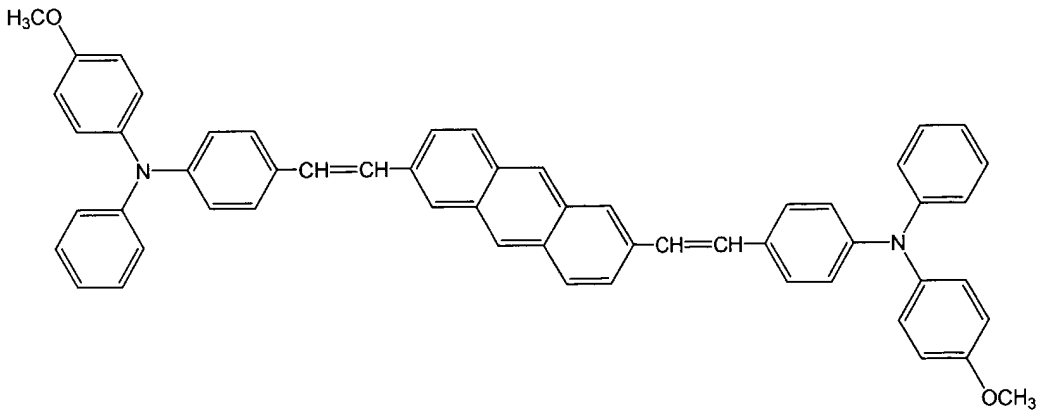
(where R^{65} denotes a saturated or unsaturated hydrocarbon group having 1 to 6 carbon atoms.)

30. (Cancelled) A process for producing a bis(aminostyryl)anthracene compound as defined in Claim 14 or 26, said process yielding a bis(aminostyryl)anthracene compound represented by the structural formula (32)-1, (32)-2, (32)-2', (32)-3, (32)-4, (32)-5, (32)-6, (32)-6', (32)-7, (32)-8, (32)-9, (32)-10, (32)-10', or (32)-10" below.

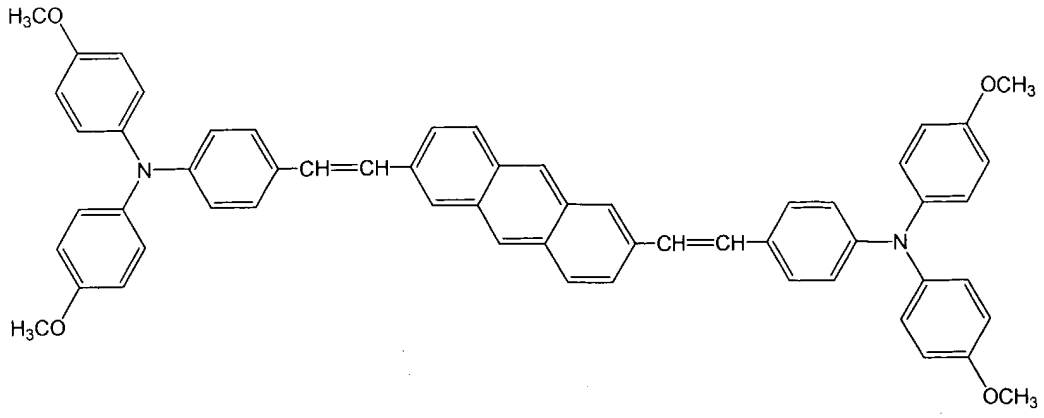
Structural formula (32)-1



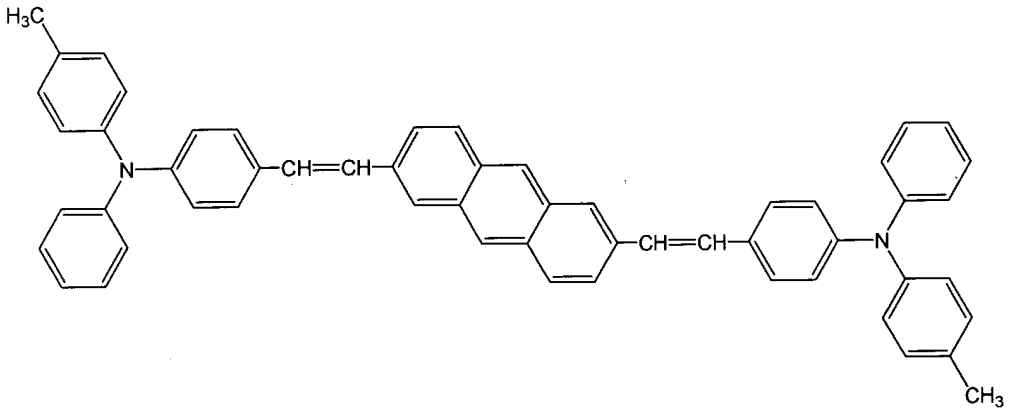
Structural formula (32)-2



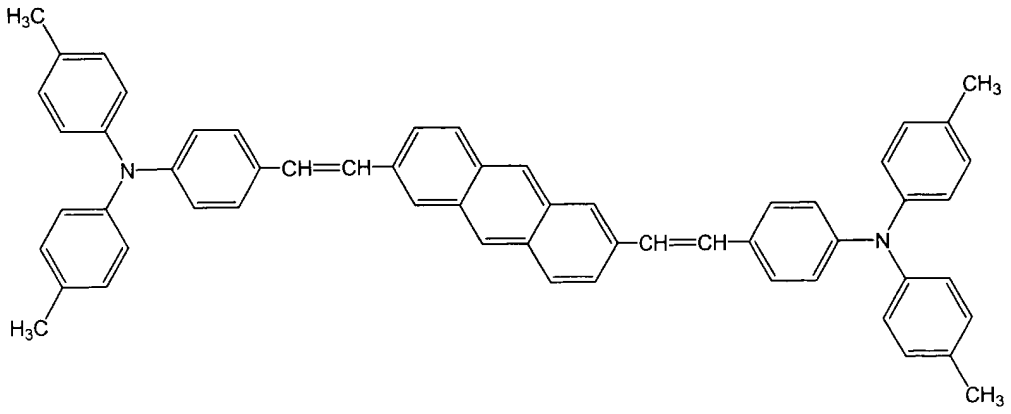
Structural formula (32)-2'



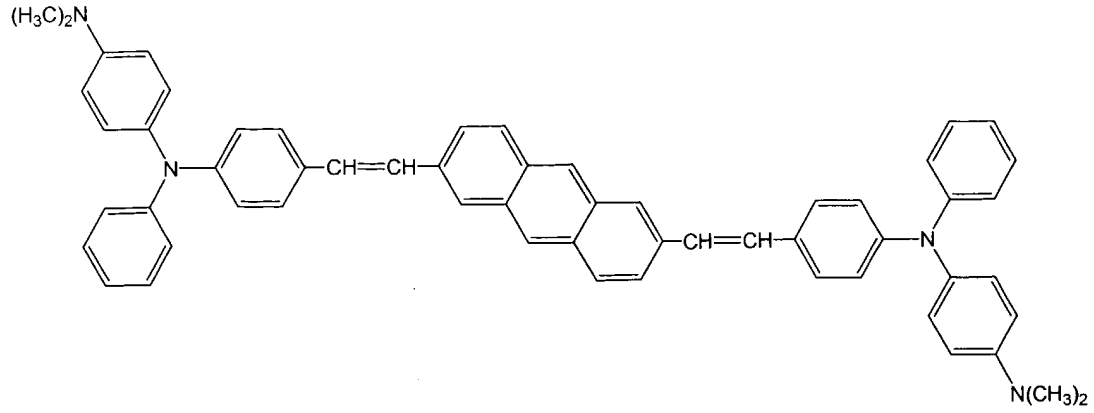
Structural formula (32)-3



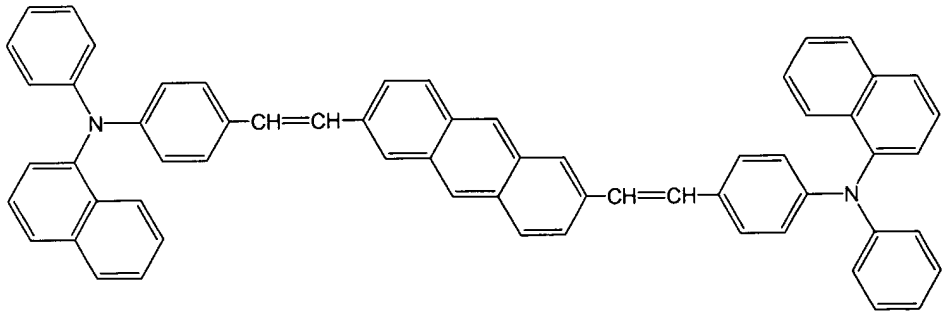
Structural formula (32)-4



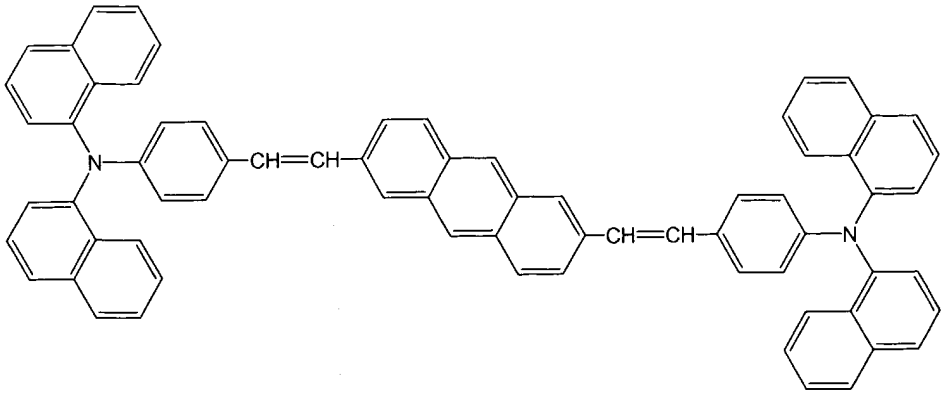
Structural formula (32)-5



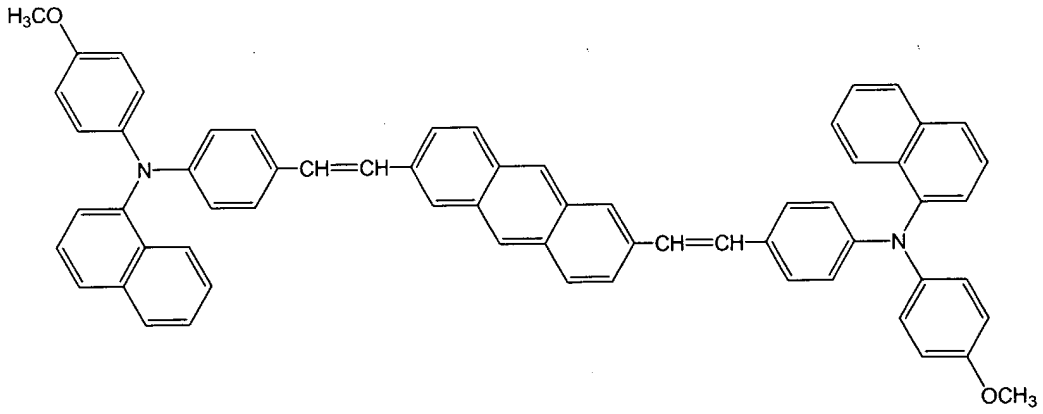
Structural formula (32)-6



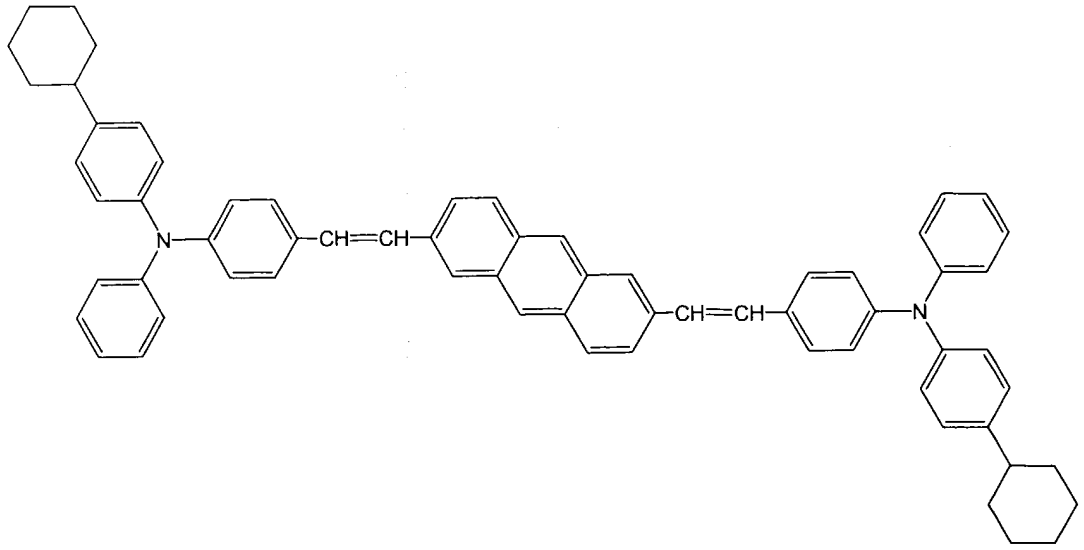
Structural formula (32)-6'



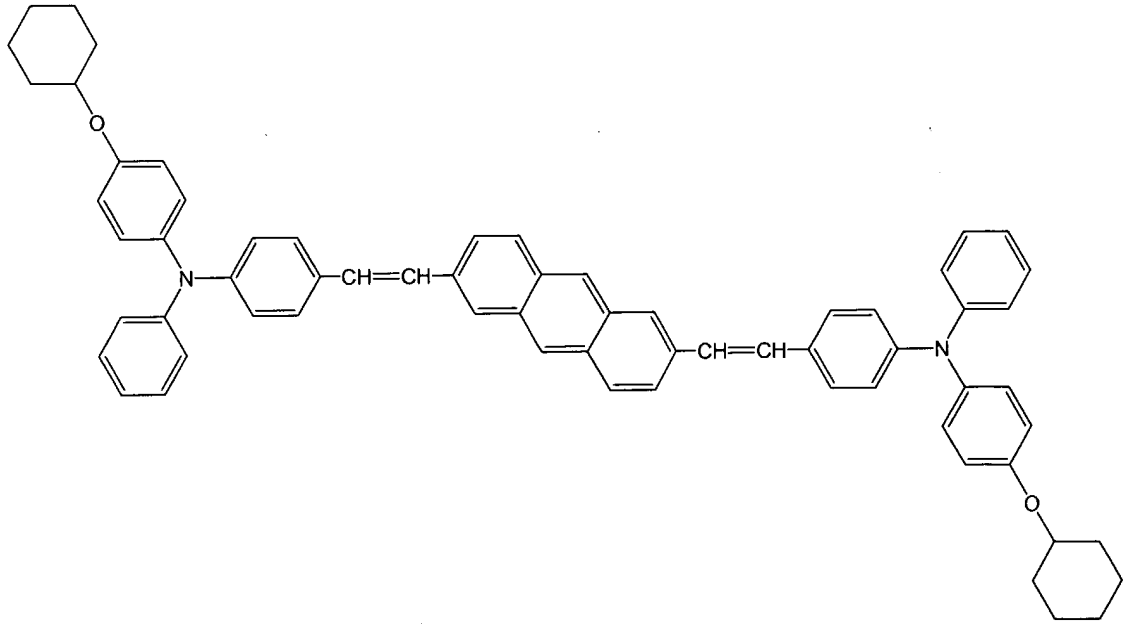
Structural formula (32)-7



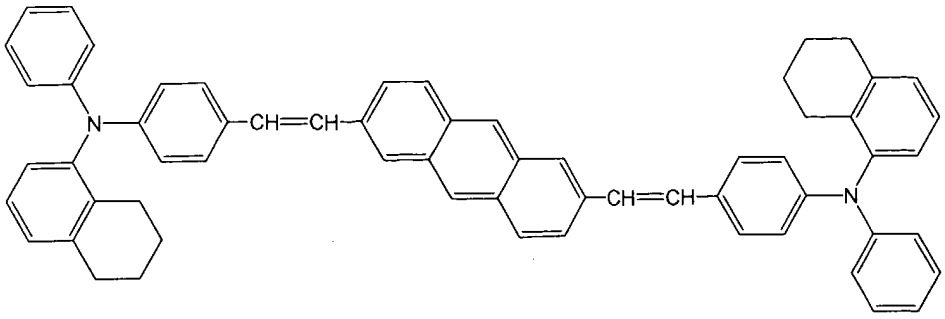
Structural formula (32)-8



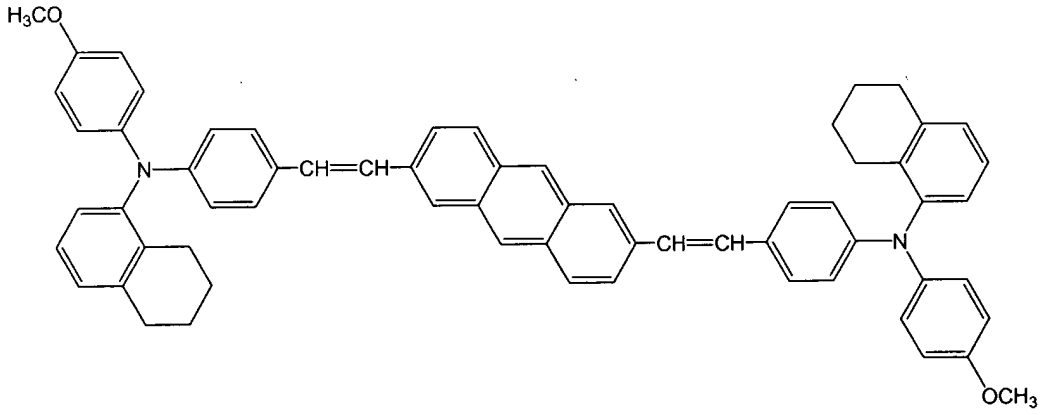
Structural formula (32)-9



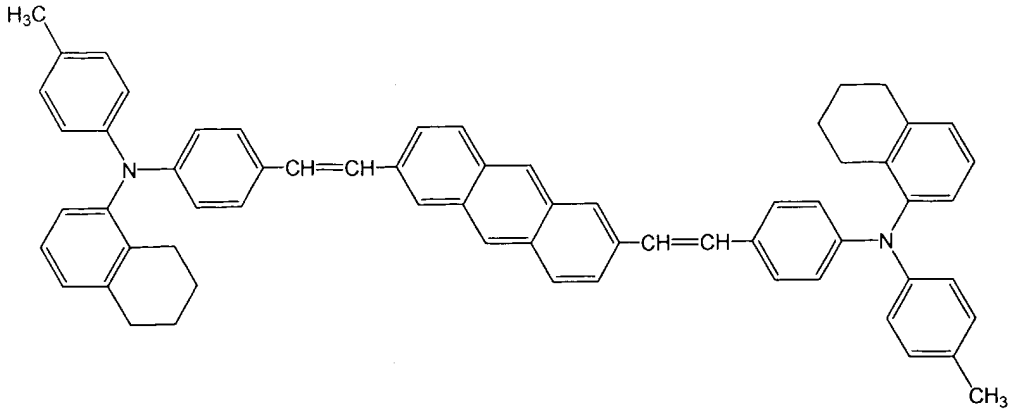
Structural formula (32)-10



Structural formula (35)-10'

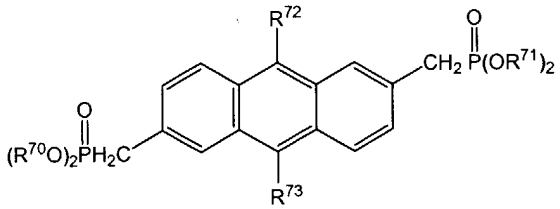


Structural formula (32)-10"

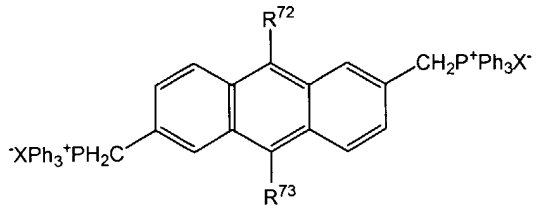


31. (Withdrawn) A diphosphonic ester or diphosphonium represented by the general formula [VII] or [VIII] below.

General formula [VII]



General formula [VIII]

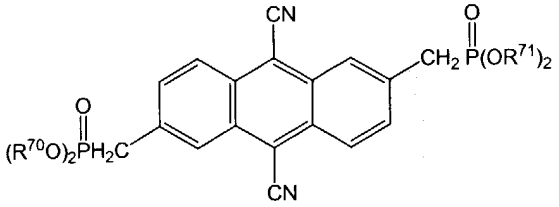


(where R^{70} and R^{71} are identical or different, each denoting a hydrocarbon group; R^{72} and R^{73} are identical or different, at least one of them denoting a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom, and X denotes a halogen atom.)

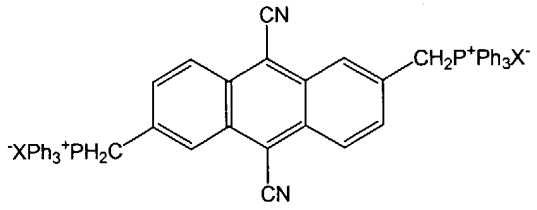
32. (Withdrawn) A diphosphonic ester or diphosphonium as defined in Claim 31, wherein R^{70} and R^{71} each denotes a saturated hydrocarbon group having 1 to 4 carbon atoms.

33. (Withdrawn) A diphosphonic ester or diphosphonium as defined in Claim 31, which is represented by the general formula (35) or (36) below.

General formula (35)



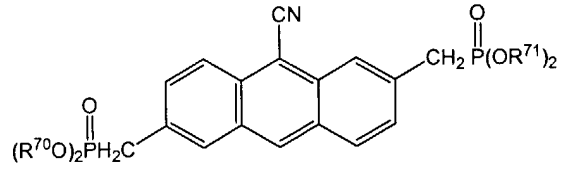
General formula (36)



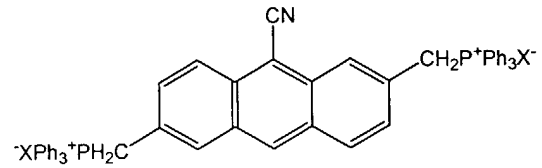
(where R^{70}, R^{71}, and X are defined as above.)

34. (Withdrawn) A diphosphonic ester or diphosphonium as defined in Claim 31, which is represented by the general formula (37) or (38) below.

General formula (37)



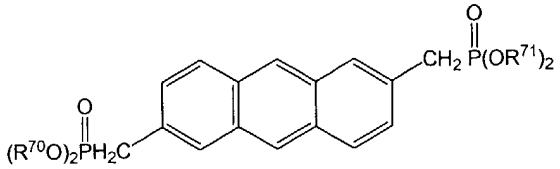
General formula (38)



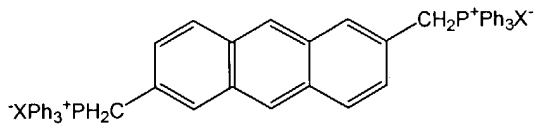
(where R^{70}, R^{71}, and X are defined as above.)

35. (Withdrawn) A diphosphonic ester or diphosphonium as defined in Claim 31, which is represented by the general formula (39) or (40) below.

General formula (39)



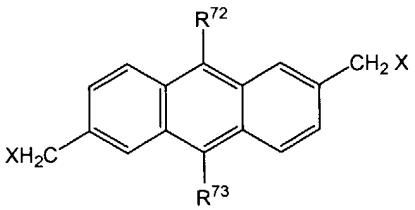
General formula (40)



(where R^{70}, R^{71}, and X are defined as above.)

36. (Withdrawn) A process for producing a diphosphonic ester or diphosphonium represented by the general formula [VII] or [VIII] below, said process comprising reacting an aryl halide compound represented by the general formula [IX] below and a trialkyl phosphite represented by the general formula [X] below or triphenyl phosphine (PPh_3).

General formula [IX]



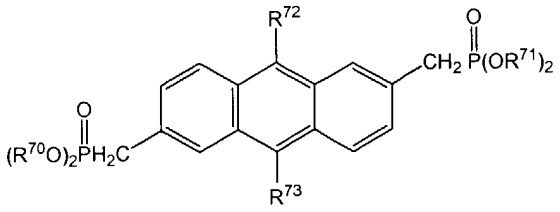
(where R^{72} and R^{73} are identical or different, at least one of them denoting a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom, and X denotes a halogen atom.)

General formula [X]

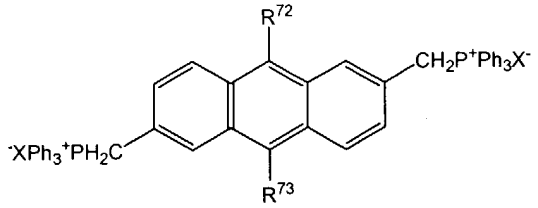
$P(OR^{74})_3$ or $P(OR^{75})_3$

(where R^{74} and R^{75} are identical or different, each denoting a hydrocarbon group.)

General formula [VII]



General formula [VIII]

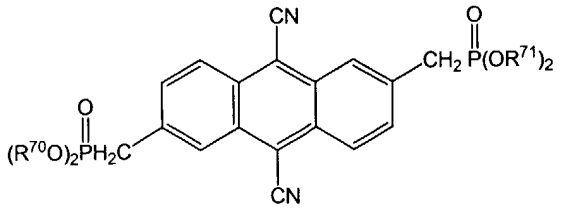


(where R^{70} and R^{71} are identical or different, each denoting a hydrocarbon group; and R^{72}, R^{73}, and X are defined as above.)

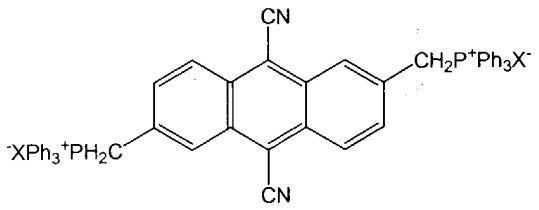
37. (Withdrawn) A process for producing a diphosphonic ester or diphosphonium as defined in Claim 36, wherein R^{70} and R^{71} each denotes a saturated hydrocarbon group having 1 to 4 carbon atoms.

38. (Withdrawn) A process for producing a diphosphonic ester or diphosphonium as defined in Claim 36, said process yielding a diphosphonic ester or diphosphonium represented by the general formula (35) or (36).

General formula (35)



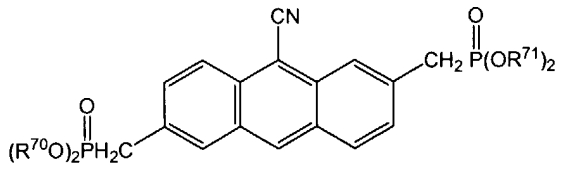
General formula (36)



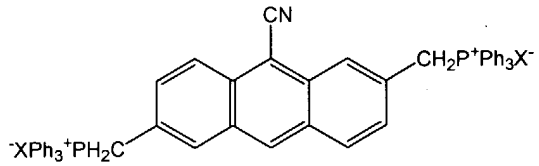
(where R^{70}, R^{71}, and X are defined as above.)

39. (Withdrawn) A process for producing a diphosphonic ester or diphosphonium as defined in Claim 36, said process yielding a diphosphonic ester or diphosphonium represented by the general formula (37) or (38).

General formula (37)



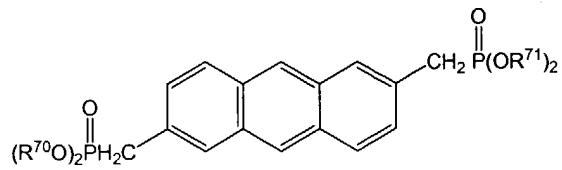
General formula (38)



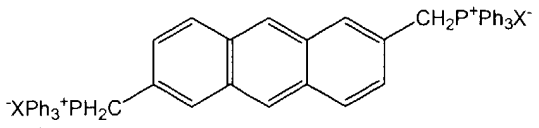
(where R^{70}, R^{71}, and X are defined as above.)

40. (Withdrawn) A process for producing a diphosphonic ester or diphosphonium as defined in Claim 36, said process yielding a diphosphonic ester or diphosphonium represented by the general formula (39) or (40).

General formula (39)



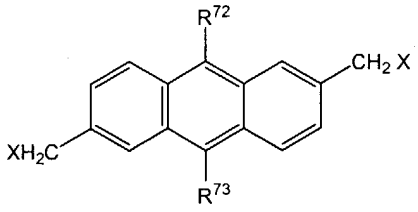
General formula (40)



(where R^{70}, R^{71}, and X are defined as above.)

41. (Withdrawn) An aryl halide compound represented by the general formula [IX] below.

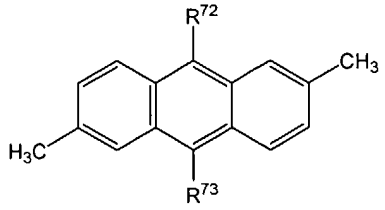
General formula [IX]



(where R^{72} and R^{73} are identical or different, at least one of them denoting a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)

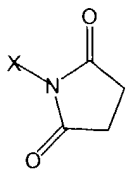
42. (Withdrawn) A process for producing an aryl halide compound represented by the general formula [IX] below, said process comprising reacting an anthracene compound represented by the general formula [XI] below with an N-halogenated succinimide represented by the general formula [XII] below.

General formula [XI]



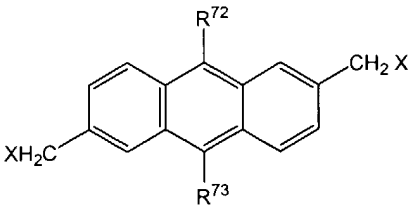
(where R^{72} and R^{73} are identical or different, at least one of them denoting a hydrogen atom, cyano group, nitro group, trifluoromethyl group, or halogen atom.)

General formula [XII]



(where X denotes a halogen atom.)

General formula [IX]



(where R^{72} and R^{73} are defined as above, and X denotes a halogen atom.)

SUPPORT FOR THE AMENDMENT

Claims 1-13 have been amended to correct informalities and grammatical errors. No new matter has been added.